



Operating Manual

AX-201

Software release - 2.0

PHILIPS

Assembleon
Integrated electronics manufacturing solutions

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CHAPTER 1 General machine information

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1.1 Front side items

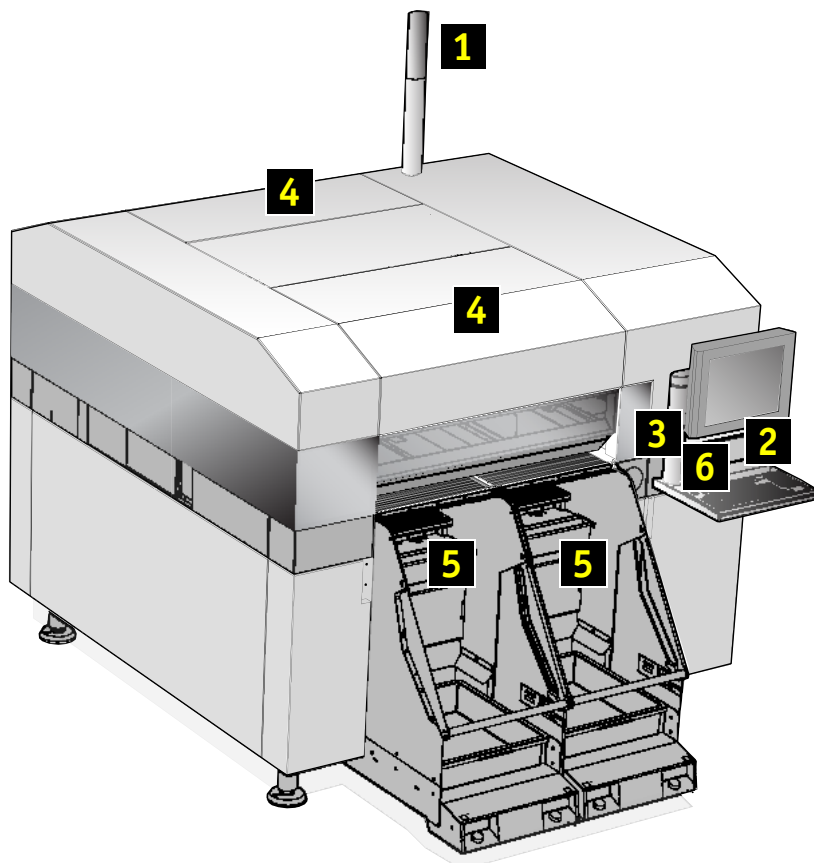


Figure 1 Front side

1. Lamp post, showing the machine status:
Green, machine in processing mode.
Blue, machine in error mode.
White, machine in maintenance mode or idle mode.
2. Keyboard and touch screen.
3. Emergency stop button.
4. Protective cover front and rear.
5. Feeder trolleys.
6. Start button (PA 2410/00 only).

1.2 Rear side items

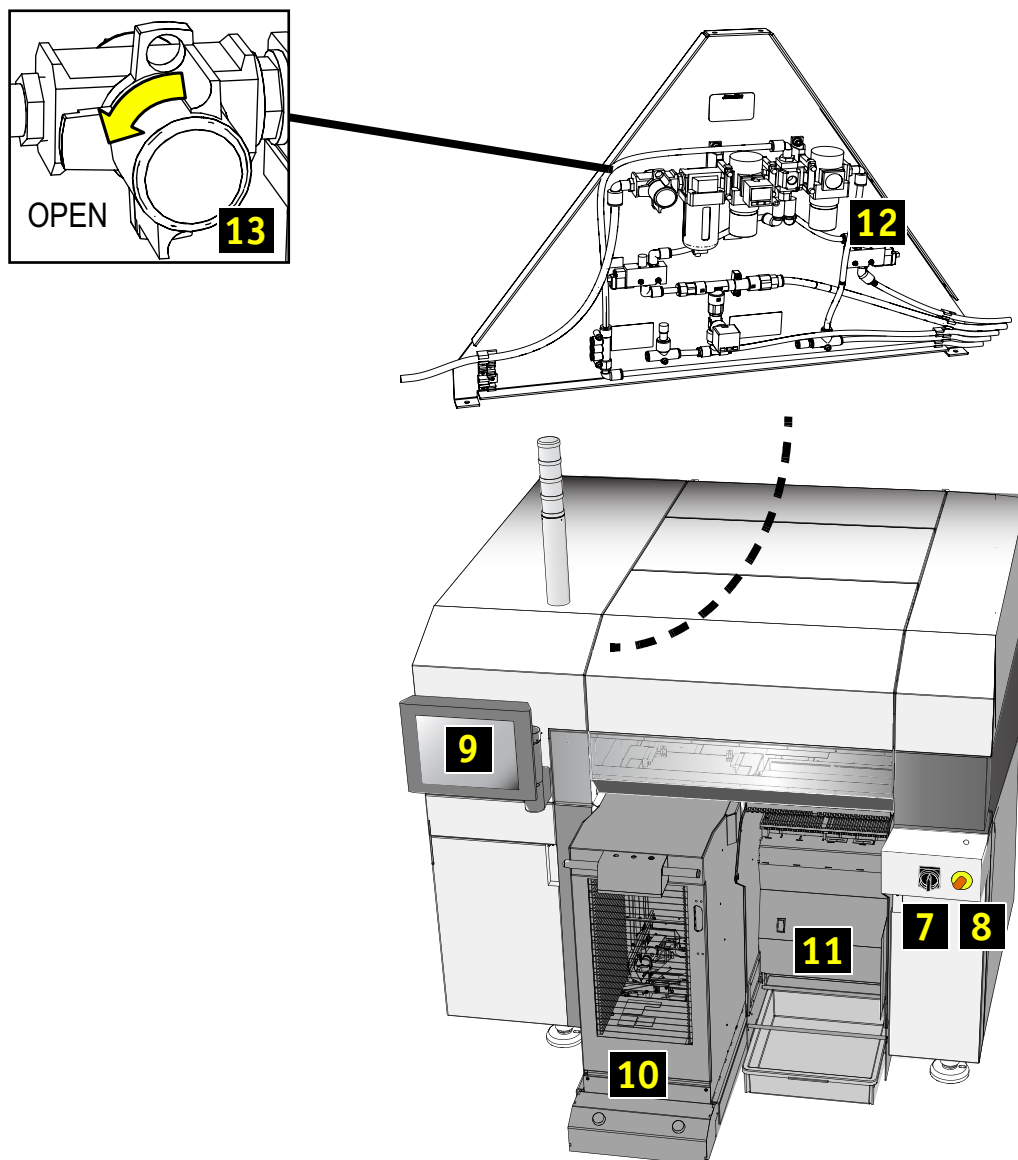


Figure 2 Rear side

- 7. Main switch.
- 8. Emergency stop button.
- 9. Touch screen rear (optional).
- 10. Tray trolley.
- 11. Feeder bank.
- 12. Air supply unit.
- 13. Air main switch.

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1.3 Board transport

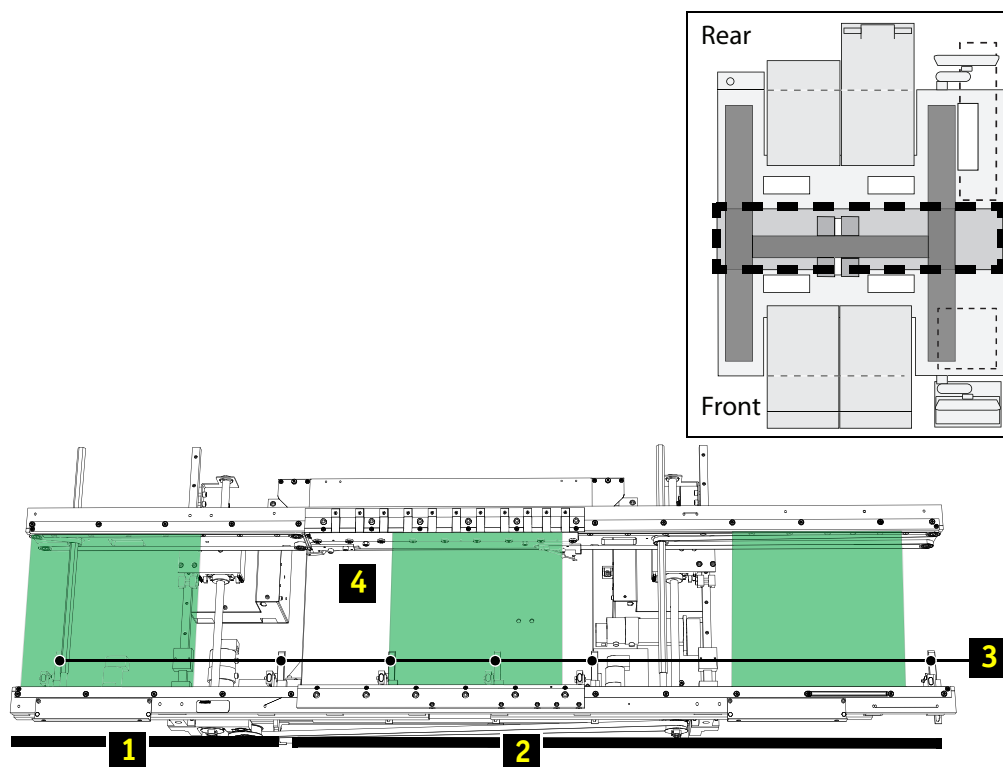


Figure 3 Board transport

The board transport moves the boards through the machine.

1. Run-in section.
2. Work area / run-out.
3. Board sensors.
4. Lift table with board clamping mechanism and board support pins.

1.4 Pick and place

Main function of the placement heads is to pick and place SMD components. The placement heads are moved in X and Y direction via the XY robot.

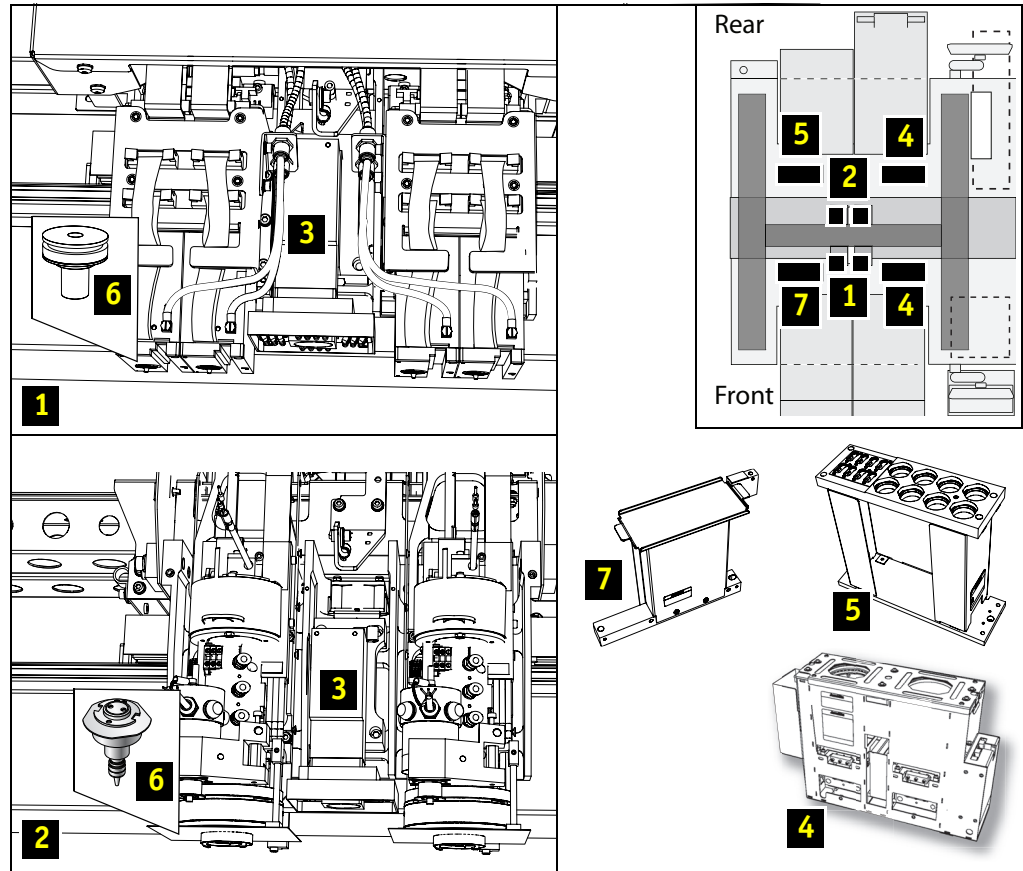


Figure 4 Pick and place

1. Placement heads DV (dual vision).
2. Placement heads HA (high accuracy).
3. BA (board alignment) camera, determining the position of the placement head related to the board and trolley.
4. CV (component vision) camera, measuring the actual position of the component when picked and the shape of a component.
5. Toolbit exchange unit, for unused toolbits
6. Toolbits.
7. Reuse station, for rejected components that are too valuable to waste and might be repaired.

1.5 Graphical user interface (GUI)

The machine is operated via the touch screen. By touching the screen the desired function can be activated. No keyboard is necessary. The keyboard, located in the base under the touch screen, is mainly for service purposes.

1.5.1 Conventions

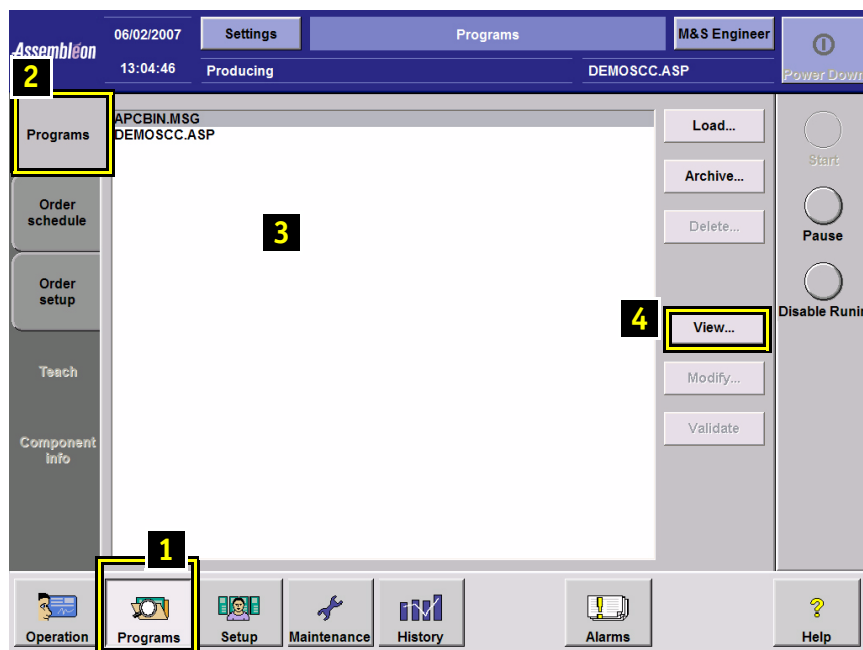


Figure 5 Touch screen

Activating a button on the touch screen is indicated by a circle in this manual. If more than one button has to be activated, the sequence is shown by numbers.

1.5.2 Touch screen lay-out

The screen is divided into the following panels:

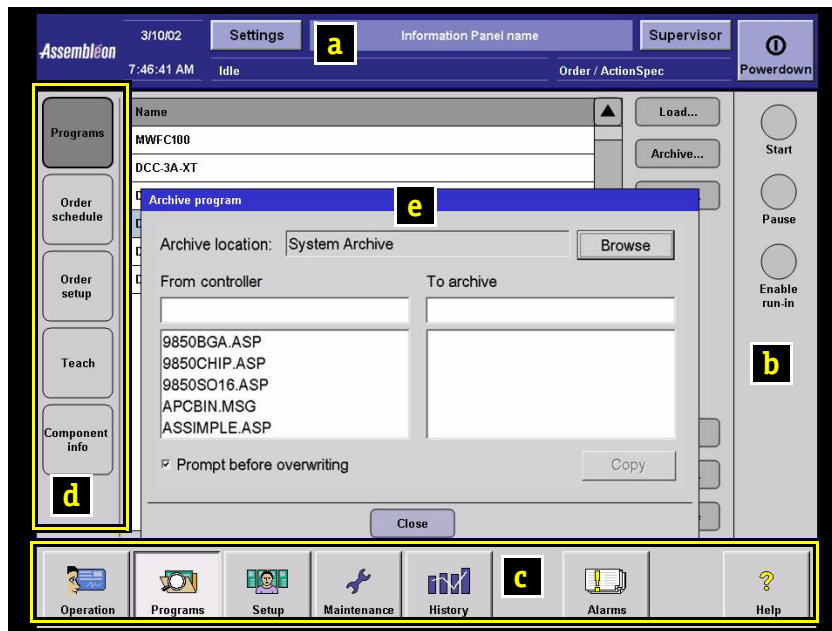


Figure 6 Touch screen, lay-out

- | | |
|--------------------------|--------------------------------------------------------------------------------------------------|
| a) Title panel: | Shows general information of the system. |
| b) Command panel: | Contains main buttons to start or stop the production. |
| c) Navigation panel: | Is used to switch between the different functional environments of the graphical user interface. |
| d) Sub navigation panel: | Is used to switch between the available information panels within one functional environment. |
| e) Information panel: | Shows all information that belongs to a selected function. |

CHAPTER 2 Safety

2.1 General

For the correct and safe use of this machine, it is essential that all personnel should follow the safety procedures specified in this manual.

All manuals have danger, warning and cautionary statements where applicable.

Danger, warning and cautionary statements and / or symbols are present on the machine where applicable.

2.2 Personnel qualification

Operation, adjustment, maintenance and repair of this machine shall be carried out by **qualified and trained** personnel only.

The following training levels are defined:

- Operator level.
- User or supervisor level.
- Maintenance or service level.



NOTE: For each level an official Assembléon training is available.

2.3 Basic safety rules

- Do not use the machine in an environment where flammable gasses are present or where it is extremely dirty.
- When any personal protection equipment (PPE) is mentioned, it should be used in accordance with the manufacturers instructions.
- Do not defeat or bridge safety devices, connectors etc.
- Use only Assembléon recommended spares and tools.
- Keep fingers and other body parts outside the machine.

2.4 Safety compliance

The safety of this machine is based on industry-specific criteria (international codes, regulations, and standards).

Since this machine is designed for operation in a flow line, full mechanical safety in accordance with these criteria is only guaranteed when openings of the run-in and run-out sections are covered by the preceding and succeeding equipment in the flow line.

This machine should not be operated as a stand-alone machine.

2.5 Danger, warning and caution

■ Danger

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

A danger statement is displayed in this manner:



HAZARD IDENTIFICATION

Hazard consequence.
Hazard avoidance.

■ Warning

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

A warning statement is displayed in this manner:



HAZARD IDENTIFICATION

Hazard consequence.
Hazard avoidance.

■ Caution

Caution indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

A caution statement is displayed in this manner:



HAZARD IDENTIFICATION

Hazard consequence.
Hazard avoidance.

2.6 Safety stickers




Pictogram	Category	Meaning
	1 Warning	DANGER OF CLAMPING FINGERS Serious injury to fingers. Keep hands away from moving parts.
	2 Warning	DANGER OF STRONG MAGNETIC FIELD Pacemaker and metal prosthetic users are at risk of serious injury or death. Stay away from the magnets.
	3 Warning	DANGER, HIGH VOLTAGE Contact may cause electric shock or burn. Turn off & lock out system before servicing.

Figure 7 Safety stickers

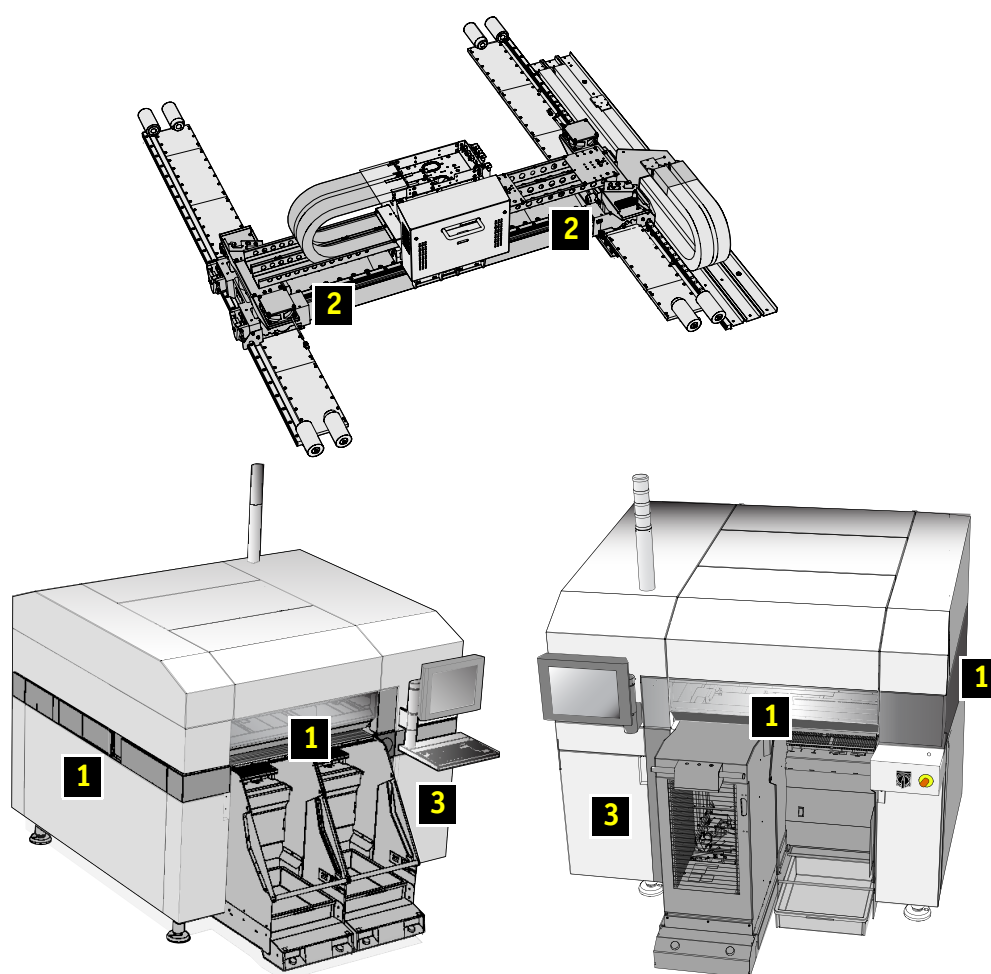


Figure 8 Location of safety stickers

2.7 Safety devices

	Safety device	Hazard protected	Detection method	Machine condition after safety device is activated
1	Emergency stop button front and rear	Hazardous moving parts.	Safety circuit interruption by pushing the emergency stop button.	All moving parts will be stopped and power to servo systems is turned off.
2	Safety interlock.	Hazardous moving parts.	Safety circuit interruption by opening hood rear.	
3			Safety circuit interruption by opening hood front.	
4			Safety circuit interruption by lowering any trolley.	
5			Safety circuit interruption by removing any trolley lift cover.	
6	"Start on" button. PA 2410/00 only.	Uncontrolled power up	Preventing uncontrolled power up of machine after power failure.	Power to the machine is turned on.
7	Electrical disconnect.	Hazardous voltage.	Mains power supply to the machine interruption by turning the electrical main switch to 'off'.	All power to the machine is turned off.
8	Air disconnect.	Hazardous air pressure.	Main air supply to the machine interruption by turning the main air switch to 'off'.	All air pressure to the machine is turned off, and present air pressure is released safely.
9	Enabling switch front and rear	Hazardous moving parts	Device for running the machine with the front or rear hood opened, when troubleshooting, teaching or servicing. See 2.7.1.Enabling switch front/rear, usage	The XY robot runs at 12.5 % of its normal speed.

Figure 9 Safety devices

Locations of safety devices are depicted in [Figure 10](#) and [Figure 11](#).

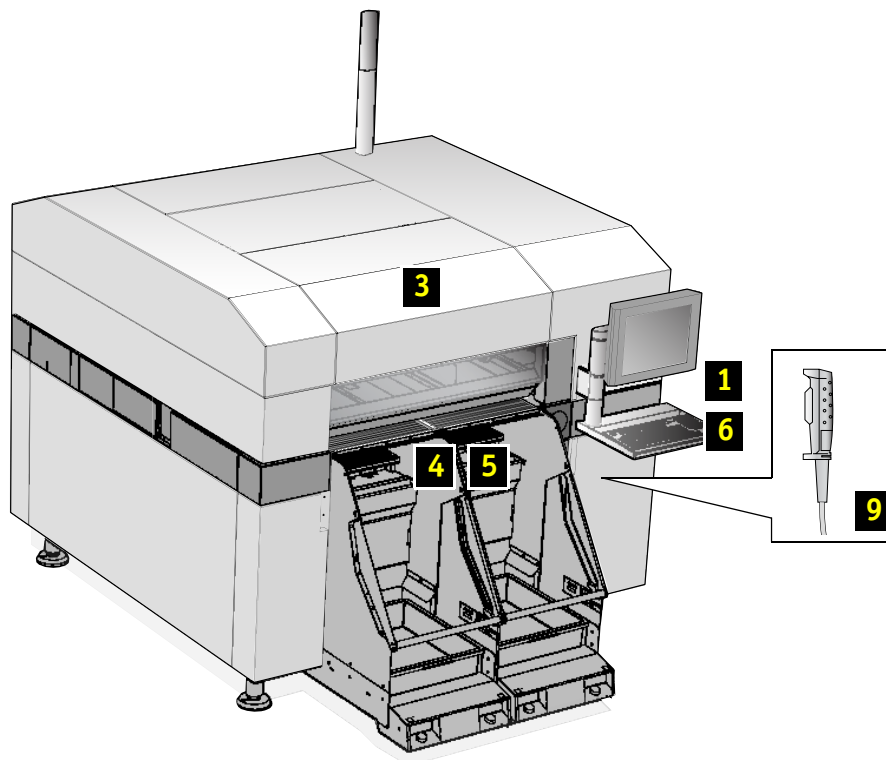


Figure 10 Location of safety devices, front

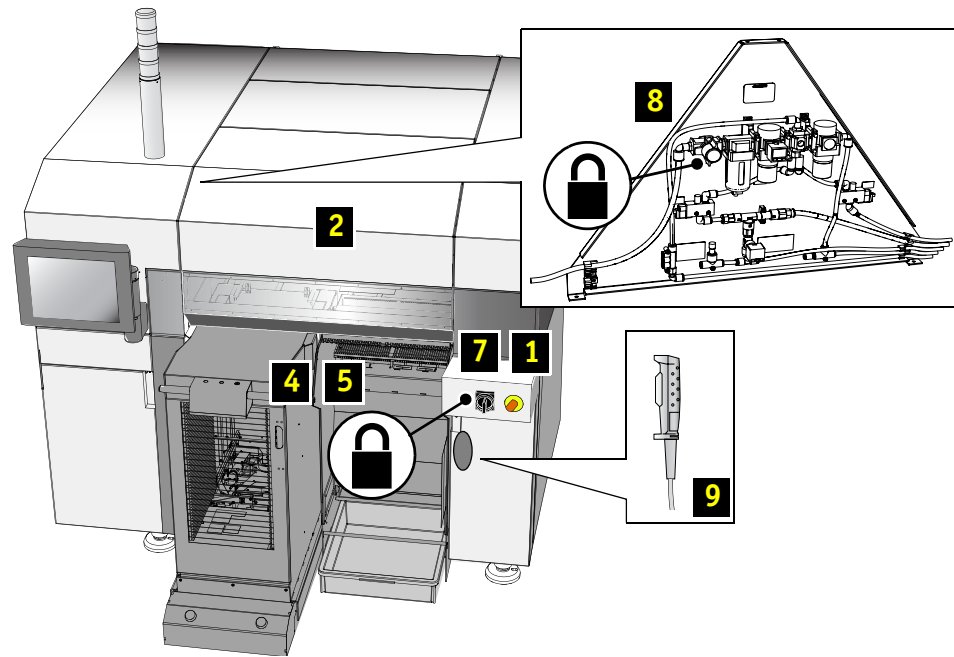


Figure 11 Location of safety devices, rear

Lock the electrical main switch (7) and the air main switch (8) by a padlock to avoid unauthorized use.

2.7.1 Enabling switch front/rear, usage



DANGER OF MOVING PARTS

Serious injury to fingers and body parts.
Keep fingers and body parts outside the machine.

Use the enabling switch (1) only as a hold-to-run device to suspend the safety function of the hood (2). Keep fingers and other body parts outside the machine when using the enabling switch (1).

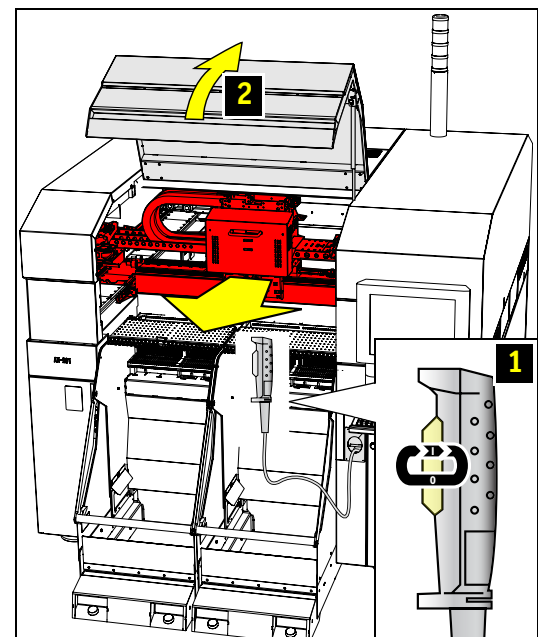
For teaching pick positions or for trouble shooting the machine can be operated with the hood (2) in opened position by using the enabling switch (1).

XY robot operation with open hood (2) is only possible when the enabling switch (1) is held in the middle position.

The XY robot (3) will run at 12.5 % of its normal speed.

Releasing the enabling switch (1) or squeezing the switch blocks further XY robot operation.

Each hood (front/rear) has its own enabling switch (front/rear).



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2.8 Noise levels

Location	Noise level
Sound pressure at operator's position	≤ 72 dB(A)
Average environmental noise level during measurement	≤ 58 dB(A)

Figure 12 Noise levels

2.9 Emergency contact

In case assistance is needed during an emergency situation, contact the regional Assembléon organization.

Region	Number
Asia	+65-62-61-4611
America's	+1-800-474-4547
Europe	+31-20-5040679

Figure 13 Numbers

2.10 Liability

Assembléon will not be liable for any costs, damages or personal injuries if the machine is not used according to the safety rules given in this manual. Instructions written in English are original instructions. Instructions written in other languages are a translation of the original.

2.11 Recommended tools for working safely




Description	Picture	Application
1 Stepstool		Useful for smaller persons: reaching inside the machine or closing hoods.
2 Pallet truck		Lifting and moving of heavy modules.
3 Gloves		Skin protection during lubrication.

Figure 14 Recommended tools for working safely

CHAPTER 3 Prepare production

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3.1 Power up the machine

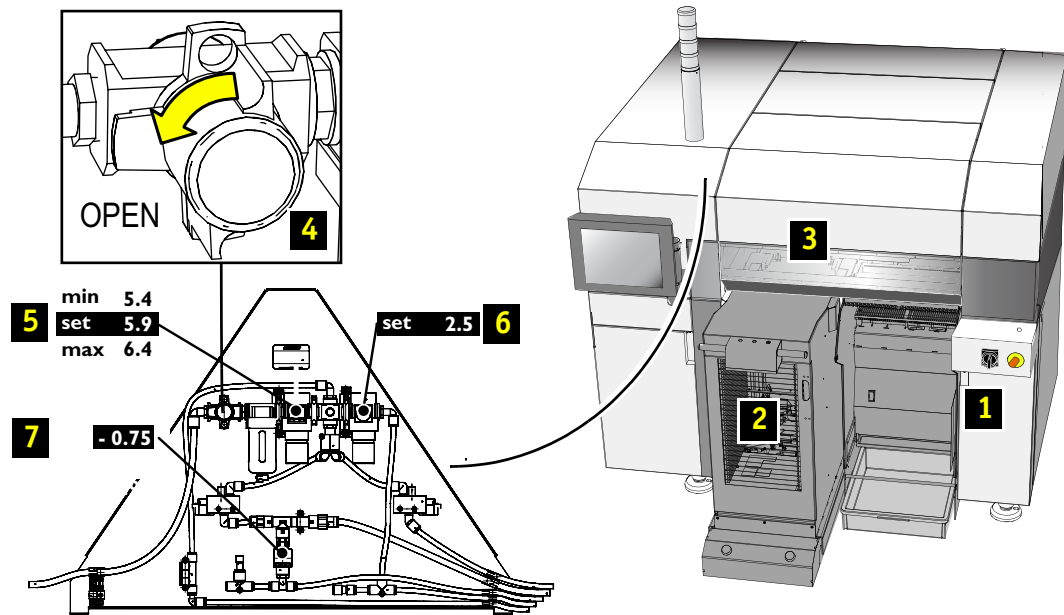


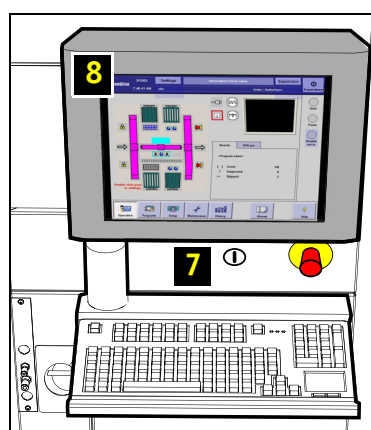
Figure 15 Power and air supply

- Go to the back of the machine.
 - Remove the padlock and switch on the main switch (1).

Initial start up only:

- Remove the trolley (2), see [3.2.Trolley, placing and removing](#), and open the rear cover (3).
- Set the air valve (4) inside the machine to the OPEN position.
- Check if compressed air (5), blower air (6) and vacuum (7) gauges show the correct values.
- Close the rear cover (1), and place trolley, see [3.2.Trolley, placing and removing](#).

- Go to the front of the machine.



- Push the start button (7) (PA 2410/00 only).
- Wait until the main screen (8) appears.

3.2 Trolley, placing and removing

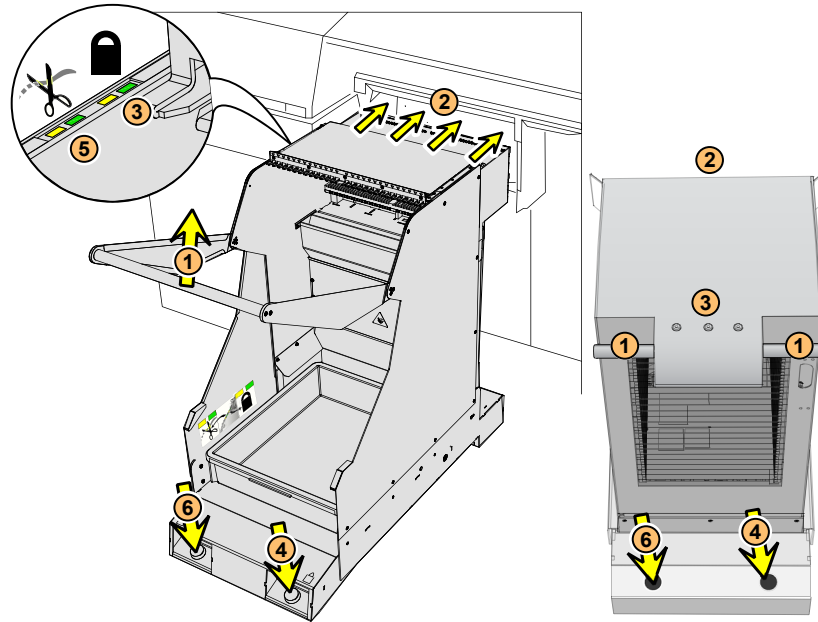


Figure 16 Placing and removing a trolley



NOTE: A trolley can only be placed and removed with the main switch turned on, followed by pushing the start button.

- Power up the machine, see [3.1.Power up the machine](#)
- Remove the safety cover from the machine before placing the trolley.
- Take the handle (1) and roll the trolley to the machine.
- Position the trolley in the required trolley slot (2). If positioned correctly the yellow LED (3) is on.
- Push the button (4) until the feeder trolley is fully lifted. When locked, the green LED (3) is on.
- Remove the trolley by pushing the button (6).

3.3 Machine cleaning

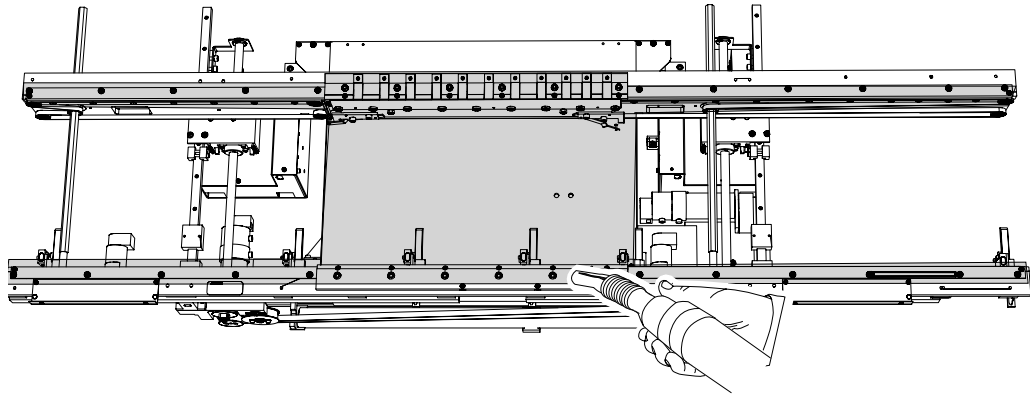


Figure 17 Machine cleaning

Use the following materials to clean the machine:

- Vacuum cleaner
- Brush



NOTE: Never use compressed air for cleaning. (Waste would be blown into fine mechanical parts, causing damage and malfunctioning of the machine.) Use, when necessary, the steps tool to prevent an unsafe work load during machine cleaning.

To clean the machine:

1. Remove the trolleys, see [3.2.Trolley, placing and removing](#)
2. Open the front and rear cover.
3. Remove with a vacuum cleaner:
 - Wasted components in transport area.
 - Wasted components on trolley areas.
 - Components in the dump bin.

3.3.1 Feeder trolley, cleaning

- Remove with a vacuum cleaner the wasted components on feeder positions.
- Feeder trolley only:

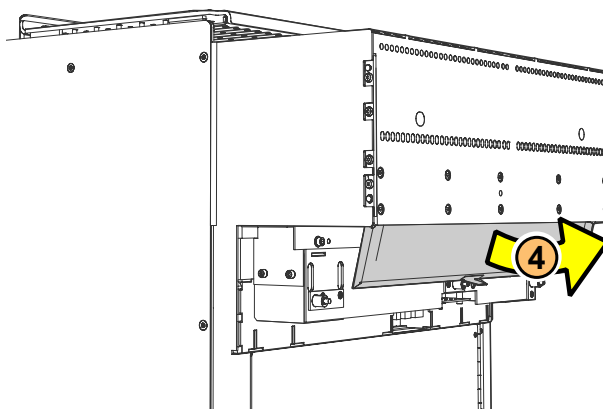


Figure 18 Feeder trolley, cleaning

Open the lid (4) and remove components from the feeder trolley.

3.4 Log on

The machine has three user levels: Operating, Supervisor and M&S engineer.

By default the machine starts at operating level, without a password.

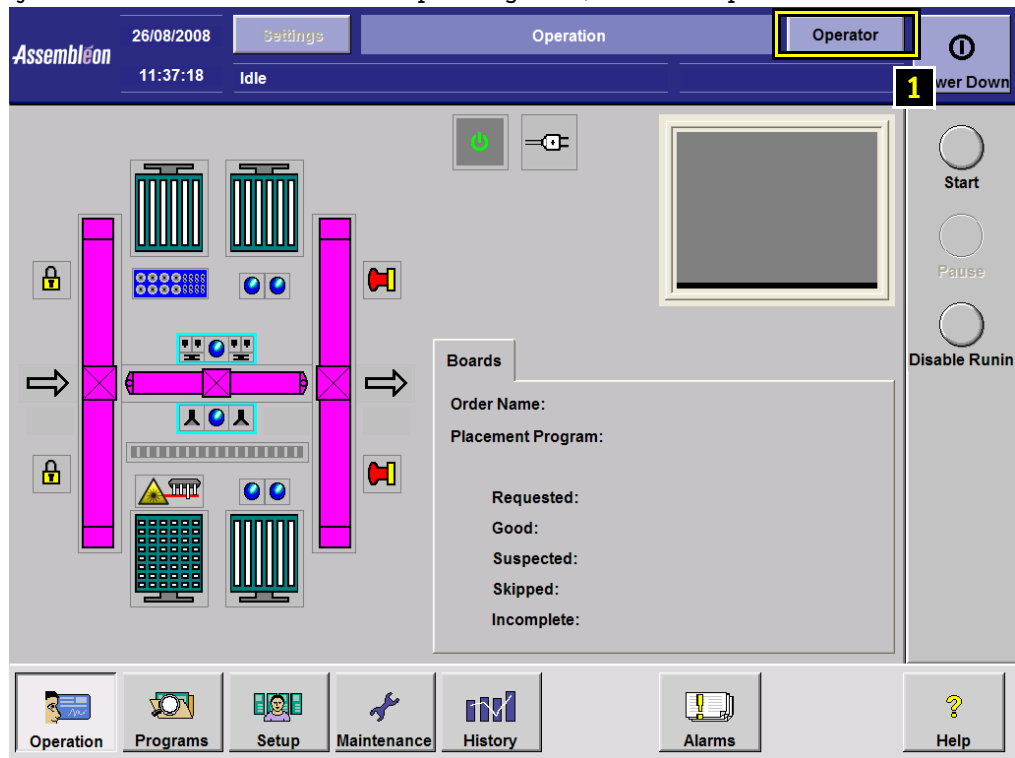


Figure 19 Default log on screen on operating level

To change the user level:

- Click on the box that displays the current user level (1).
Figure 20 will appear now.

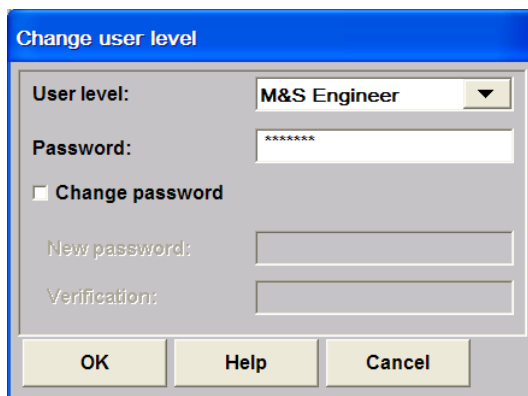


Figure 20 Change user level

3.5 Placement program, loading

The machine executes orders as listed in the order schedule. Each order uses a placement program that describes the actions that the machine must take to produce a board. If the placement program is already loaded on the system controller a new order can be created right away. However, if the placement program is not on the machine, it must be loaded first.

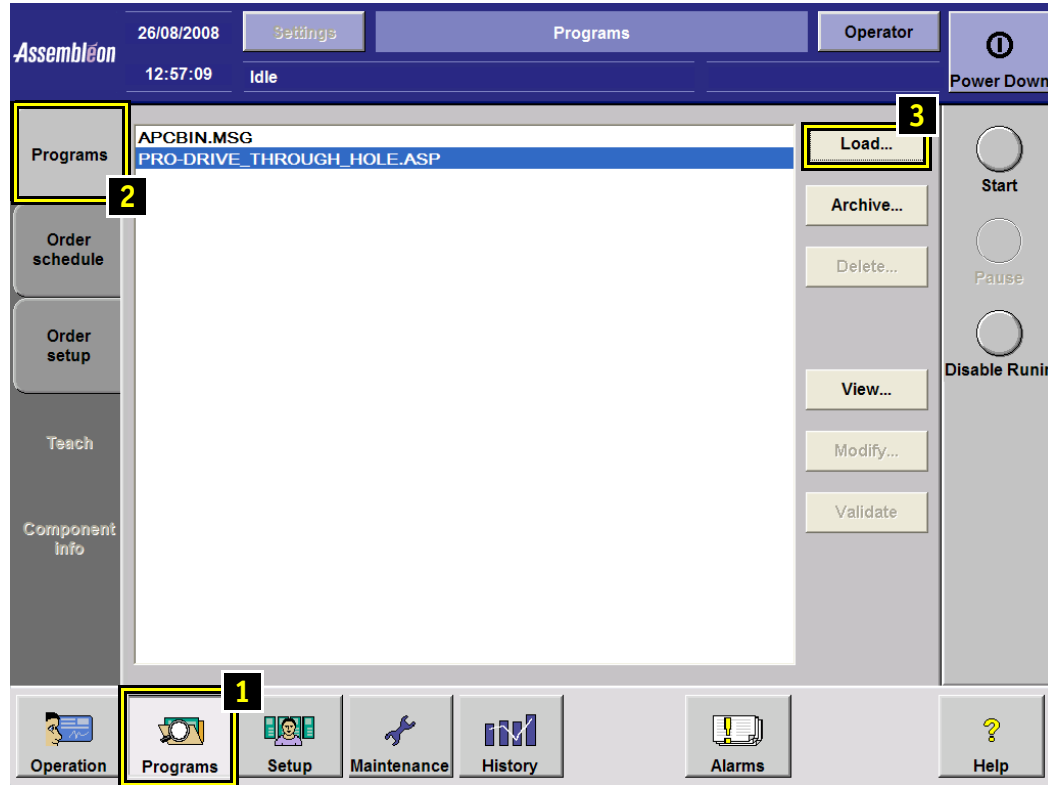


Figure 21 Loading a placement program

To load a placement program:

1. Select "Programs" from the main menu.
2. Select "Programs" from the sub-menu.
3. Click on "Load", to open the "load program screen".

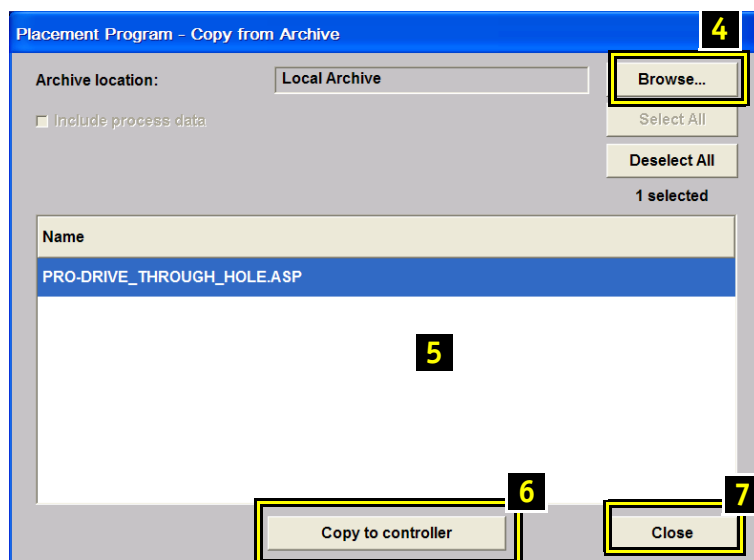


Figure 22

4. Click on "Browse" to search for the placement program on other places.
5. Select the applicable placement program by clicking on it.
6. Click on "Copy" to copy the placement program to the controller.
7. Click on "OK" to close the "load program screen".

3.6 Order, schedule

Once the placement program is loaded, an order can be created in which the placement program is executed.

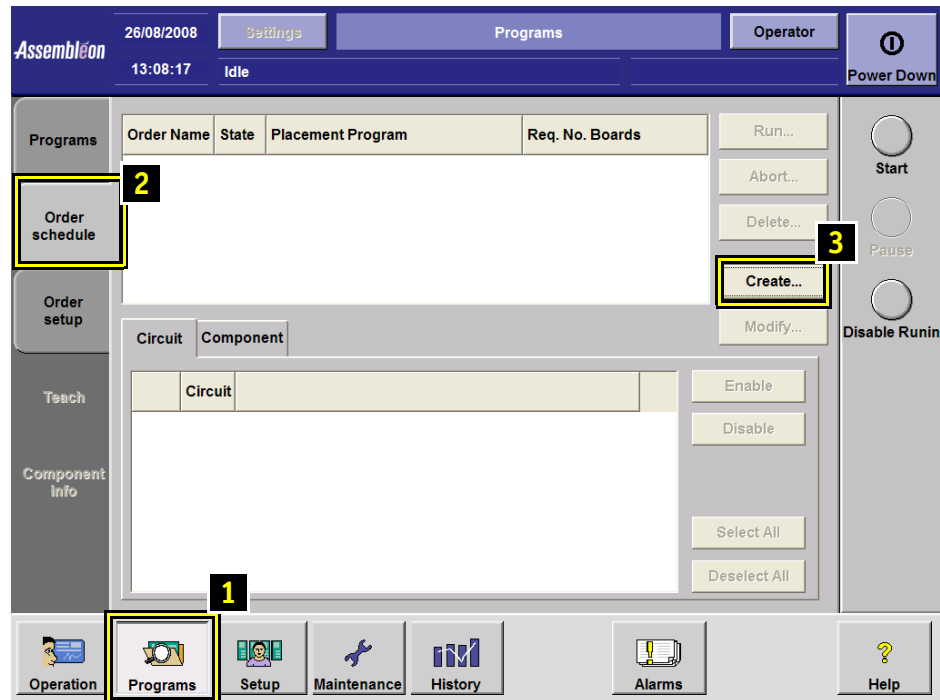


Figure 23 Creating an order

To create an order:

1. Select "Programs" from the main menu (if not already selected).
2. Select "Order schedule" from the sub-menu.
3. Click on "Create" to create an order in the schedule.

The following screen appears:

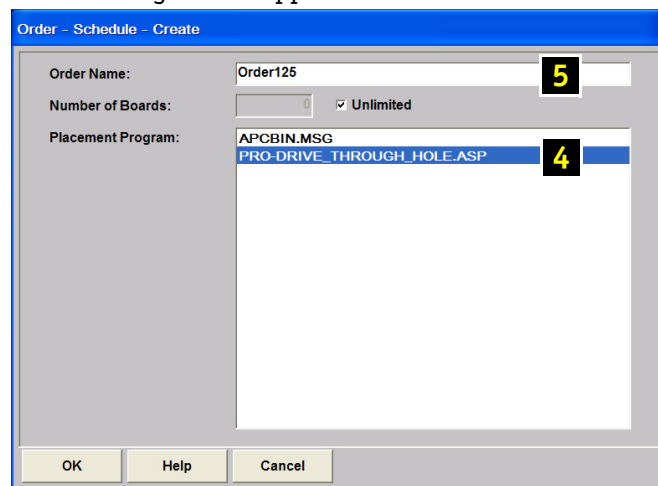


Figure 24 Creating an order

4. Select the applicable placement program from the list.
5. Enter an order name and the number of boards to be produced.

The order will now be displayed in the order schedule.

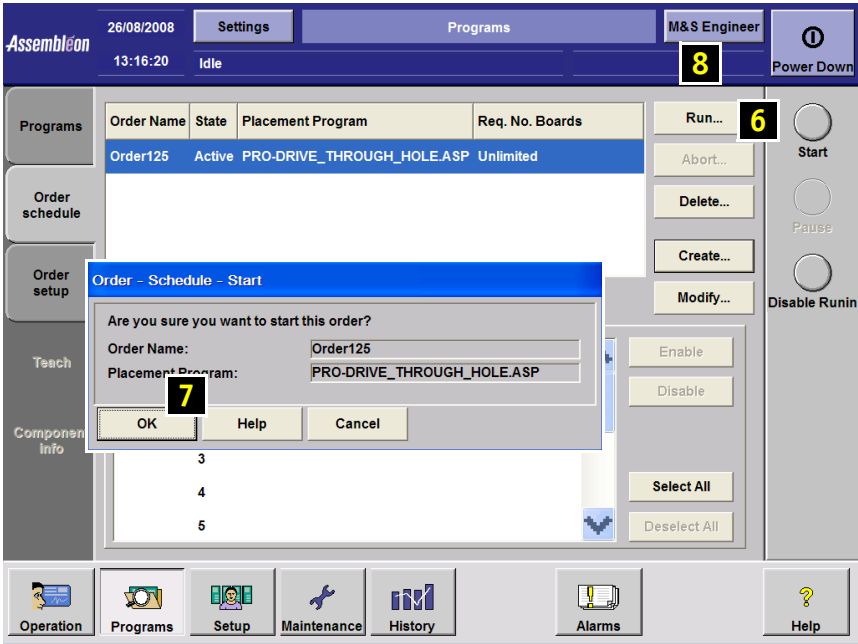


Figure 25

- Run the order (6).
- Confirm with 'OK' (7).

The name of the placement program will now appear in the header (8).

3.7 Machine setup

Before an order can be started, the order setup must be checked. In the order setup feeders, board transport and toolbits are checked.

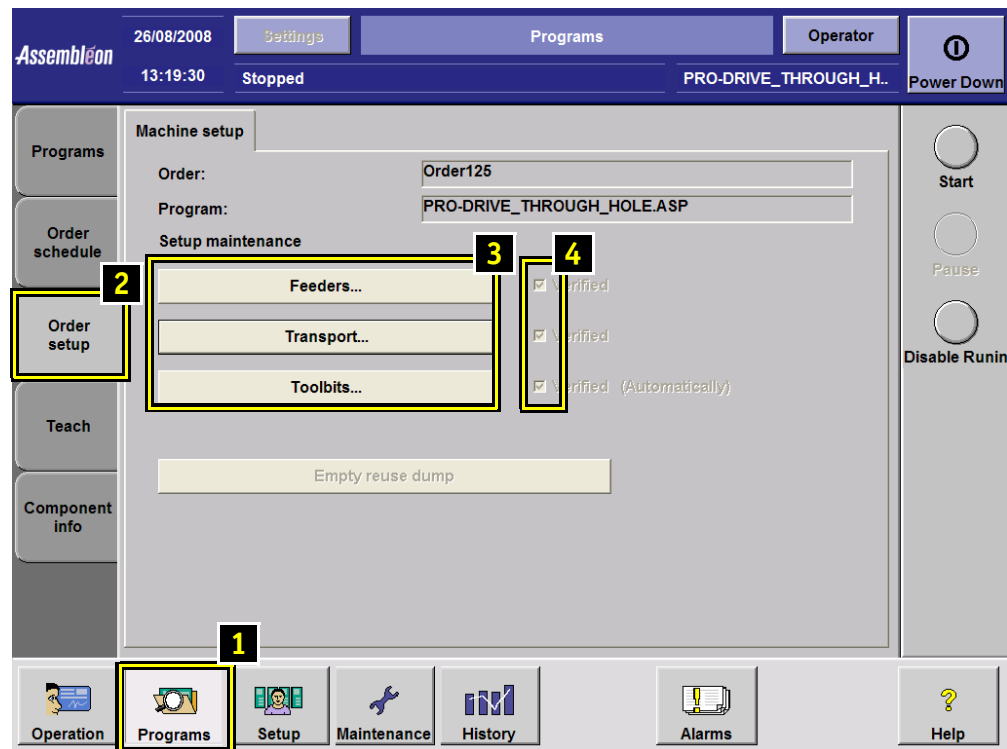


Figure 26 Machine setup

To open the "Order setup" screen:

- Select "Programs" (1).
- Select "Order setup" (2).

All set-up requirements for feeders, transport and toolbits must have been done before production can be started. The user must tick the 'Verified' check boxes (4) for each of these items when they have been checked and found correct.

- Select:
 - Feeders, see [3.8.1.Feeders, setup](#)
 - Transport, see [3.9.Transport, setup](#)
 - Toolbits, see [3.10.Toolbits setup](#)

3.8 Trolleys

Trolley handling, see [3.2.Trolley, placing and removing](#)

3.8.1 Feeders, setup

The user can inspect, enter or change the feeder setup of the machine. The first pick-up location of a tray can be defined and feeders can be disabled. The current feeder section configuration of the machine is shown in [Figure 27..](#)

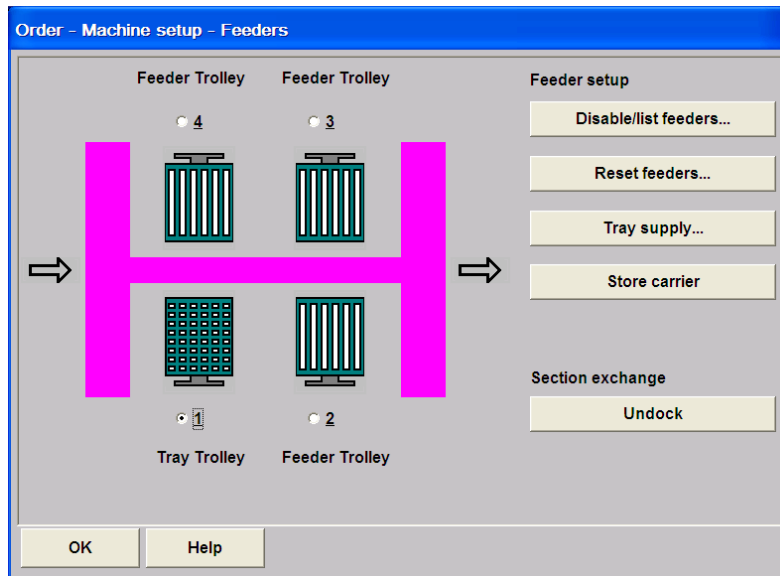


Figure 27

- Select a trolley for editing.
- **DISABLE/LIST FEEDERS:** [3.8.1.1.Disable / list feeders:](#)
Opens the window to inspect the feeder setup and disable or enable feeders of the selected trolley.
- **RESET FEEDERS:** [3.8.1.2.Reset feeders](#)
To reset the feeders or tray to 'full' of the selected trolley after a splice action. A new window will open with to specify the reset function.
- **TRAY SUPPLY:** [3.8.1.3.Tray supply](#)
To set the first pick position in a partial filled tray.
Only enabled if a tray trolley is selected.
- **STORE CARRIER:** [3.8.1.4.Store carrier](#)
Store the carrier of the selected tray trolley section in the storage location.
Only enabled if a tray trolley is selected.
- **DOCK/UNDock:** [3.8.1.5.Dock / un-dock trolley](#)
To 'Dock' or 'Undock' the trolleys.
The button changes with respect to the status of the trolleys
After activating the button a tray trolley is ready to remove.
A 'Drop-down list' at each position will appear.
In the drop down list it is possible to change the trolley type.
- **OK:** To close the window.

3.8.1.1 Disable / list feeders:

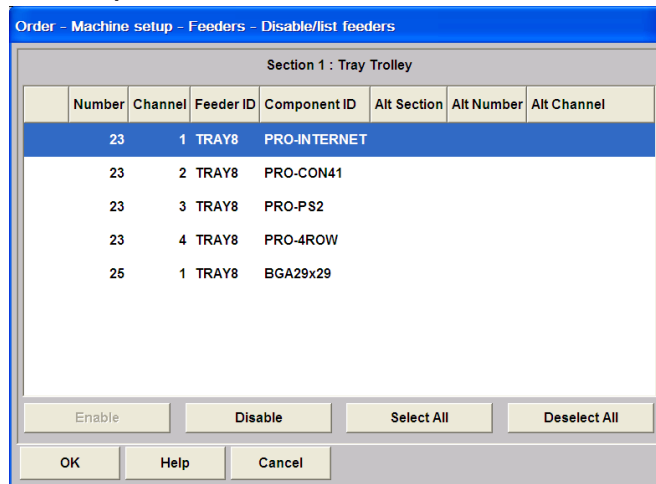


Figure 28

Opens the window to inspect the feeder setup and disable or enable feeders of the selected trolley. Disabling one feeder may cause a number of components not to be placed. The production time is affected by disabling feeders so the production time of the action spec will often decrease.

- All components that must be picked from one particular feeder can be found in the cross reference listings, which can be generated by PPS. This listing can be used to search for these components before disabling particular feeders, so that the impact of disabling is known before starting production.
- When a feeder has been disabled an "X" is shown in front of its line.
- If the user wishes to remove specific component placement instructions from the action spec then the best practice is to modify the product data in PPS and to regenerate the entire action spec with PPS. When required, PPS can maintain the existing feeder setup. It is also possible to edit the existing action spec although this will often take more time than regeneration with PPS, therefore this is not recommended.

3.8.1.2 Reset feeders

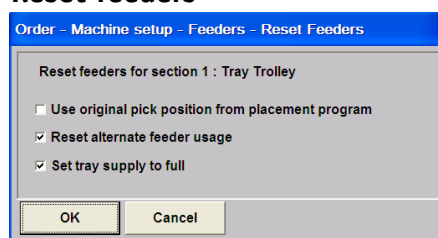


Figure 29

To reset the feeders or tray to 'full' of the selected trolley after a splice action. A new window will open with to specify the reset function.

3.8.1.3 Tray supply

To set the first pick position in a partial filled tray.
Only enabled if a tray trolley is selected.:

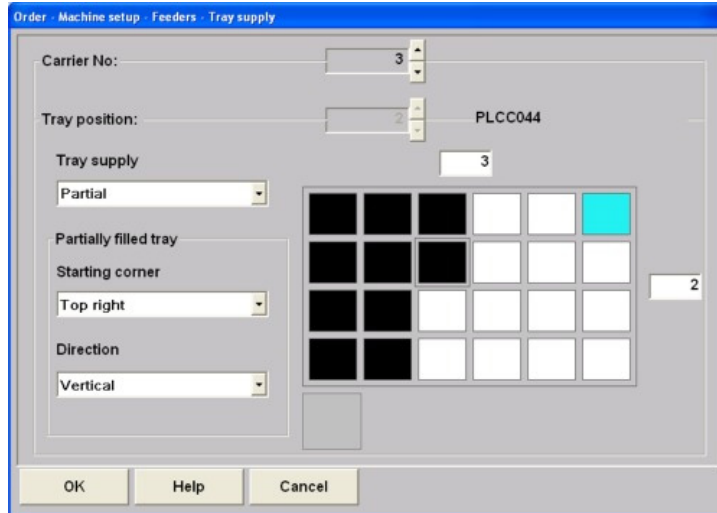


Figure 30

- **CARRIER NO:** Shows the carrier slot number in which the tray to edit is located.
 - Select UP to go to the next available carrier.
 - Select DOWN to go to the previous available carrier.
- **TRAY POSITION:** Shows the tray position on the selected carrier including the component name. Only applicable if there are two or more trays configured on the selected carrier.
 - Select UP to go to the next available carrier.
 - Select DOWN to go to the previous available carrier.
- **TRAY SUPPLY:** To define the amount of components on the selected tray.
 - Full. In case the tray is full.
The graphical presentation will show a full tray.
 - Partial. In case the tray is not completely filled.
The graphical presentation will show a full tray.
Select in the text boxes or on the graphical presentation the first component to pick.
 - Empty. In case the tray is empty.
The graphical presentation will show an empty tray.
A graphical presentation of the selected tray. Including number of components in X and Y direction and reference corner.
Selecting a component on the tray will empty the position.
Selecting a component on the tray will fill out the text boxes on top and to the right of the picture with the applicable X and Y count on the tray.
- **STARTING CORNER:** To select the starting corner on the selected tray.
 - Available options:
 - Bottom left.
 - Bottom right.
 - Top left.
 - Top right.
- **DIRECTION:** To select the pick direction on the selected tray.
 - Available options:

- Horizontal.
- Vertical.
- OK: To close the window and save all changes.
- CANCEL: To close the window without saving changes.

3.8.1.4 Store carrier

Store the carrier of the selected tray trolley section in the storage location. Only enabled if a tray trolley is selected.

3.8.1.5 Dock / un-dock trolley

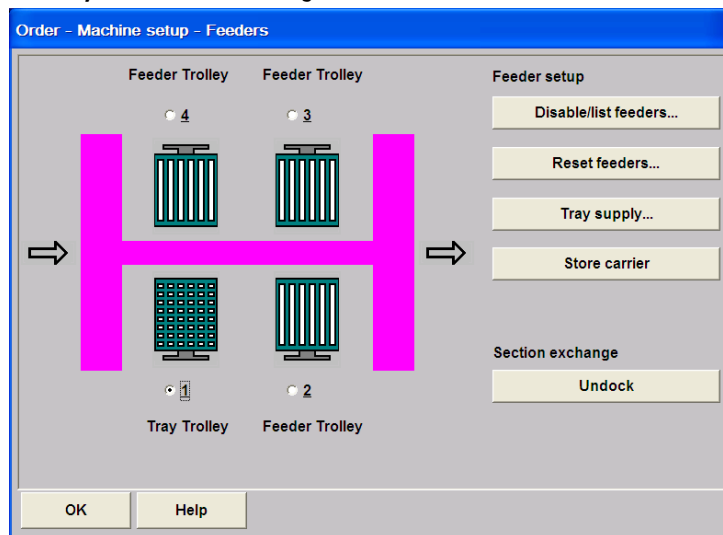


Figure 31

UNDOCK: To 'Dock' or 'Undock' the trolleys.
 The button changes with respect to the status of the trolleys.
 After activating the button a tray trolley is ready to remove.
 A 'Drop-down list' at each position will appear.
 In the drop down list it is possible to change the trolley type.

- OK: To close the window.

3.9 Transport, setup

In the 'Programs - Order setup - Transport' screen transport settings can be checked and changed. Each order may require adjustment of the board transport width.

- Ensure that no boards are present in the transport and the machine is stopped, before adjusting the board transport width.

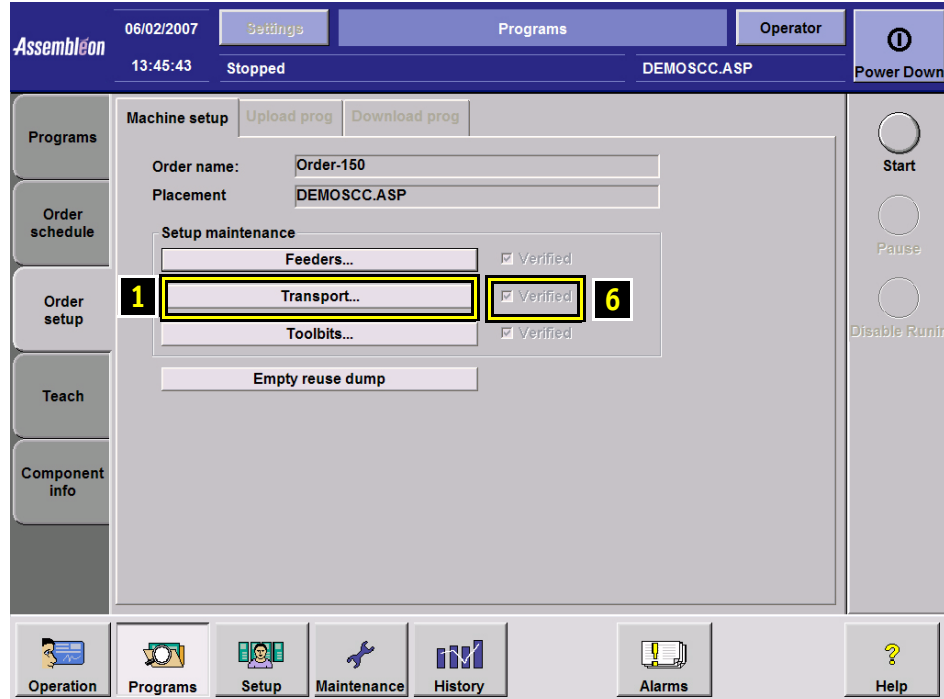


Figure 32 Transport setup

To adjust the transport width:

- Click on "Transport" (1).
- Select "Set to required width" (2) in the transport setup screen.
- When the transport has been adjusted successfully, the 'Verified' check box behind the 'Transport...' button (6) on the machine setup dialogue can be marked.

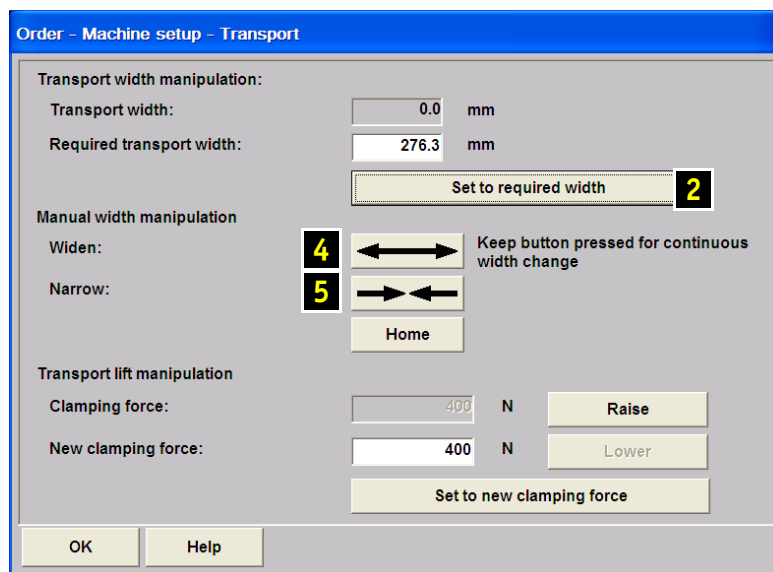


Figure 33

Available settings:

- **TRANSPORT WIDTH:** Shows the actual width of the transport.
- **REQUIRED TRANSPORT WIDTH:** Fill out the required width of the transport. The transport will be adjusted to 'board_WIDTH' + 0.85 [mm] (board width is defined in the placement program). A controller warning will be shown after selecting the 'Set to required width' for the first time. If the support pins are removed, selecting 'Set to required width' a second time will carry out the action.
- **SET TO REQUIRED WIDTH:** To move the transport from the actual to the required width. Only available if the machine is stopped. No boards must be in the transport.
- **WIDEN:** To manually set the transport to a higher width.
- **NARROW:** To manually set the transport to a smaller width.
- **HOME:** To home the transport. Only available if the machine is stopped. No boards must be in the transport.
- **CLAMPING FORCE:** Shows the actual clamping force of the transport in newton. This force may have to be reduced for boards in board frames or for very fragile boards.
- **NEW CLAMPING FORCE:** Fill out the required clamping force of the transport in newton.
- **SET TO NEW CLAMPING FORCE:** To set the transport from the actual to the new clamping force.
- **RAISE:** To manually raise the transport to get to a higher clamping force. Disabled when the highest clamping force is reached.
- **LOWER:** To manually lower the transport to get a lower clamping force. Disabled when the lowest clamping force is reached.
- **OK:** To close the window and save all changes made.

3.9.1 Transport width, checking

- Check the transport width using a board, fine tune the width using the "widen" or "narrow" (4,5) button if necessary.

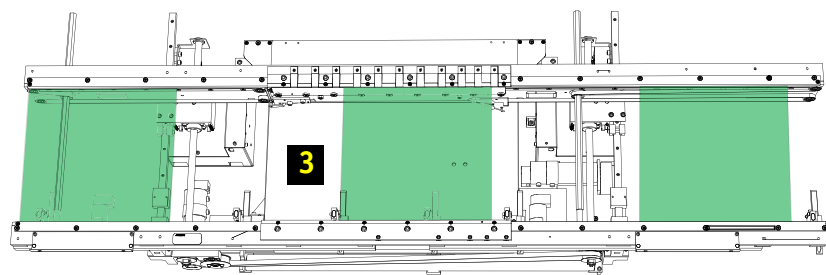


Figure 34 Board support pins

- If necessary, place magnetic support pins (3) to support the board in the work-area.
The magnetic contact enables easy movement of the pins. It is advisable to mark the required locations for supporting the board on a transparent plate which is held in the work-area of the machine instead of the board. The user can now see if the pins are in the correct position.
- Ensure that the pins do not damage earlier positioned components on the bottom side of the board.

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3.10 Toolbits setup

Each order may require a different set of toolbits.

To check this:

- Make the order running.
- Ensure that no boards are present in the transport and the machine is stopped, before changing the toolbit setup.

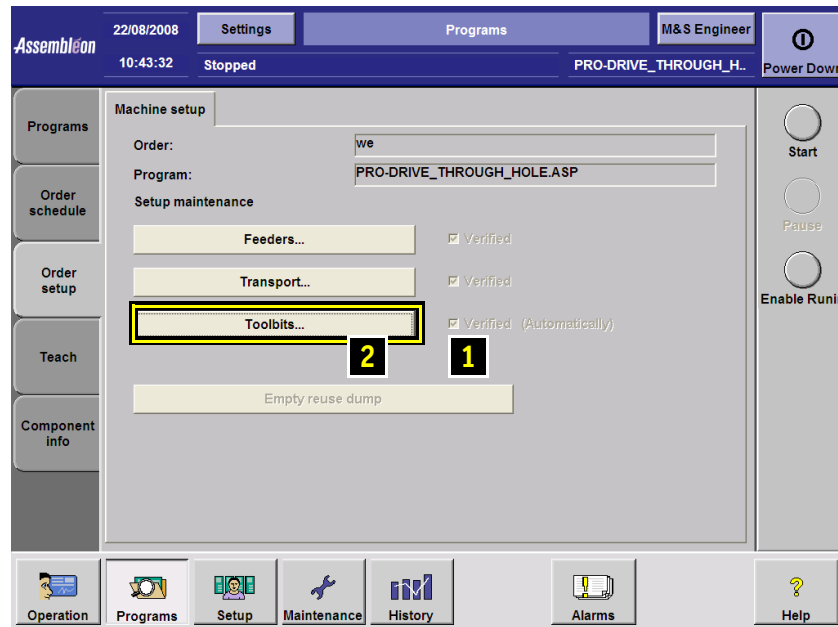


Figure 35 Toolbits setup

If the 'Toolbits' (1) check box is disabled, it is checked automatically.

In case the toolbits check box (1) is not marked:

- Enter the toolbits dialogue (2) in order to make the necessary changes.

3.10.1 Toolbit in placement head, exchange manually

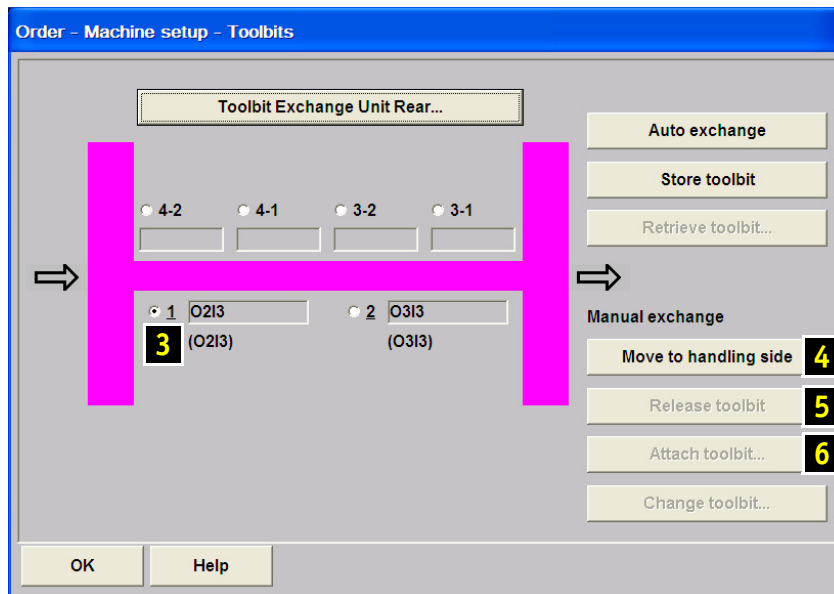


Figure 36 Toolbits setup

- To exchange the toolbits in the placement heads manually, select the applicable head (3) and click on “Move to handling side” (4).
- Open the cover at the specific side of the machine. The servo power will switch off.

If there is still a toolbit in the head, hold it. The toolbit is unlocked in the next step and it would fall down if not held!

- Select “Release toolbit” (5). If there was a toolbit in the head it will be released now. Take the toolbit out and store it in a secure place. Toolbits for placement heads DV are kept by magnetic force and must be pulled off by hand.
- A special dialogue appears to select the requested toolbit. Select the requested toolbit.
- Insert the toolbit manually into the head. Properly align the toolbit with its fixing hole directed towards the front side.
- Select 'Attach toolbit' (6) the toolbit will then be locked into the head. It is no longer necessary to hold it.

3.10.2 Toolbit in toolbit exchange unit, exchange manually

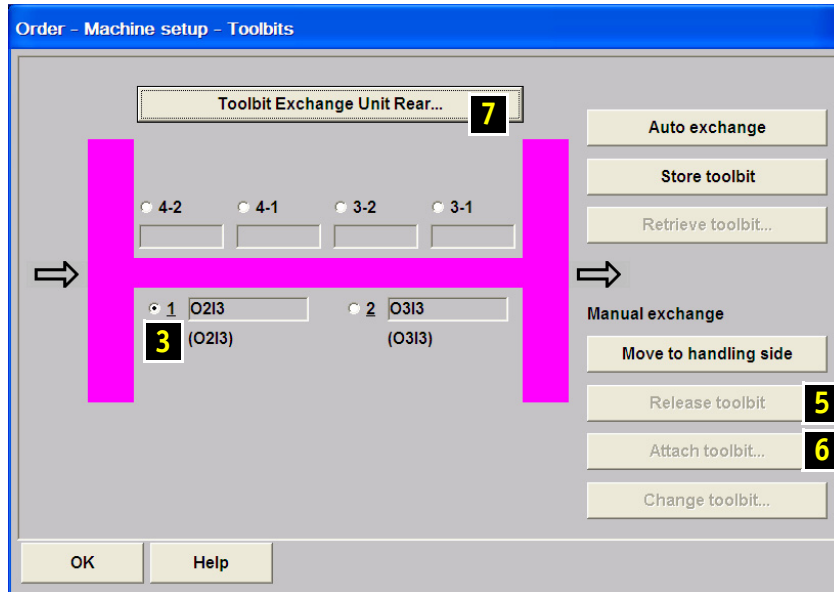


Figure 37

- To exchange the toolbits in the toolbit exchange unit, click on the button "Toolbit exchange unit rear" (7).
The toolbit exchange unit screen will open:

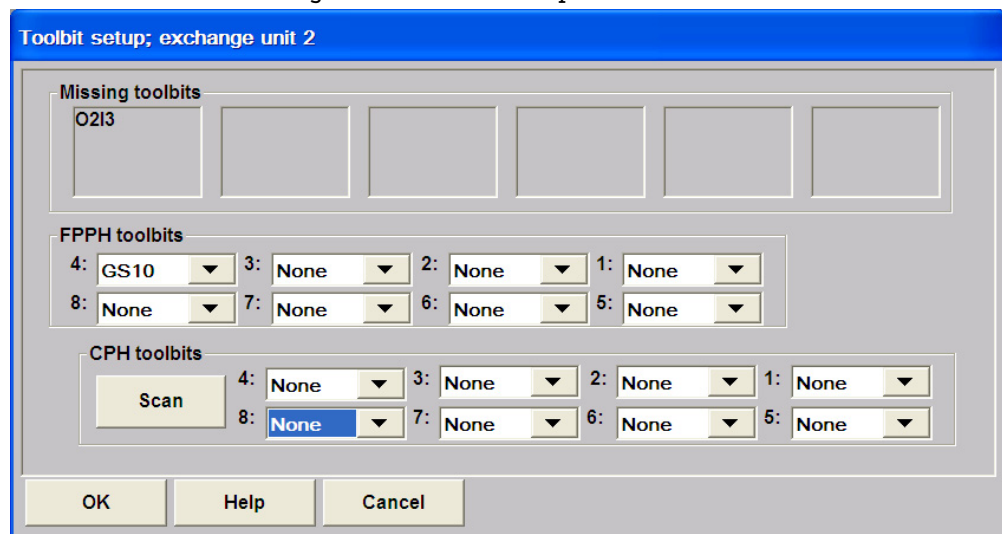


Figure 38 Toolbit exchange unit

- Repeat 3.10.1.Toolbit in placement head, exchange manually, until all missing toolbits are in the heads.
When all toolbits have been placed in the heads:
- Place the required toolbits in the toolbit exchange unit.
- Select the corresponding toolbits in the toolbit exchange unit screen. This way the system knows the location of the toolbits in the toolbit exchange unit.
- Confirm the location of the toolbits by clicking on the "OK" button.
- Tick the 'Verified' check box behind the 'Toolbits...' (1) button on the machine setup dialogue.
- Close the cover.

CHAPTER 4 Run production

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4.1 Start production

Before production can be started a placement program must be running. The procedures for set-up should be carried out completely. This will result in three marked 'Verified' check boxes on the order setup dialogue see [3.7.Machine setup](#).

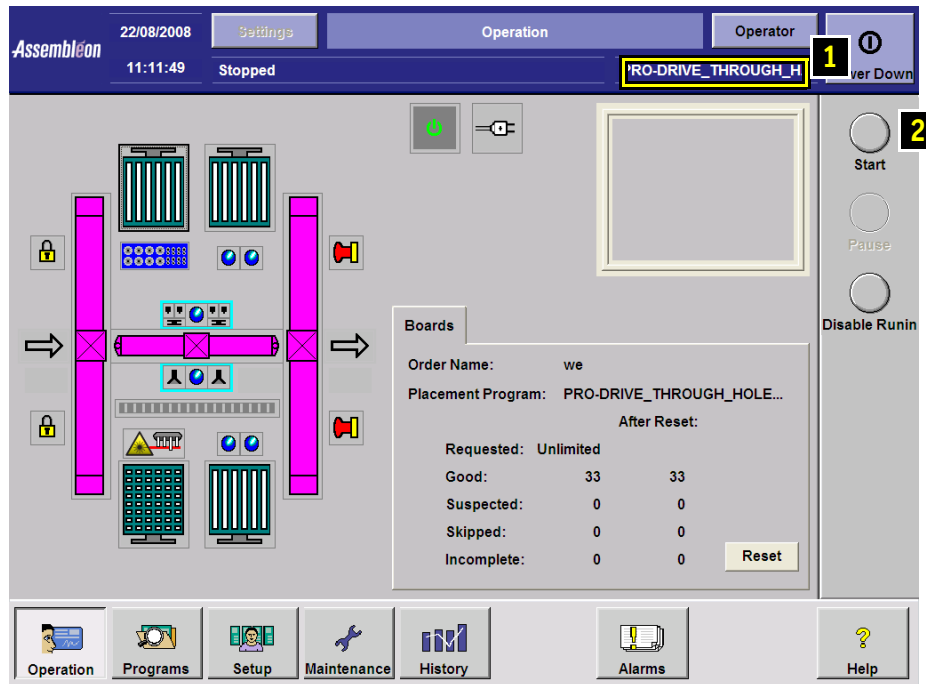


Figure 39

- Check if the order (1) is present.
- Start production by selecting the start button (2).

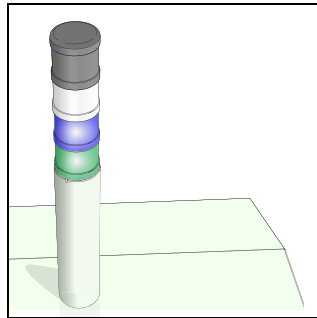
The control buttons (start/Stop, Pause and Disable/Enable run-in) are visible at the right side of the screen at all times.

After successful completion of this action the machine status display will show that the machine is running.

4.2 Monitor production

During production the operator can monitor production as follows:

■ Lamp post



Beeper: In case of an error the operator will be warned by an acoustic signal.

White: Emergency activated / machine stopped / idle state.

Blue: Request for operator interference, caused by faulty conditions.

Green: Safe running mode.

Figure 40 Lamp post

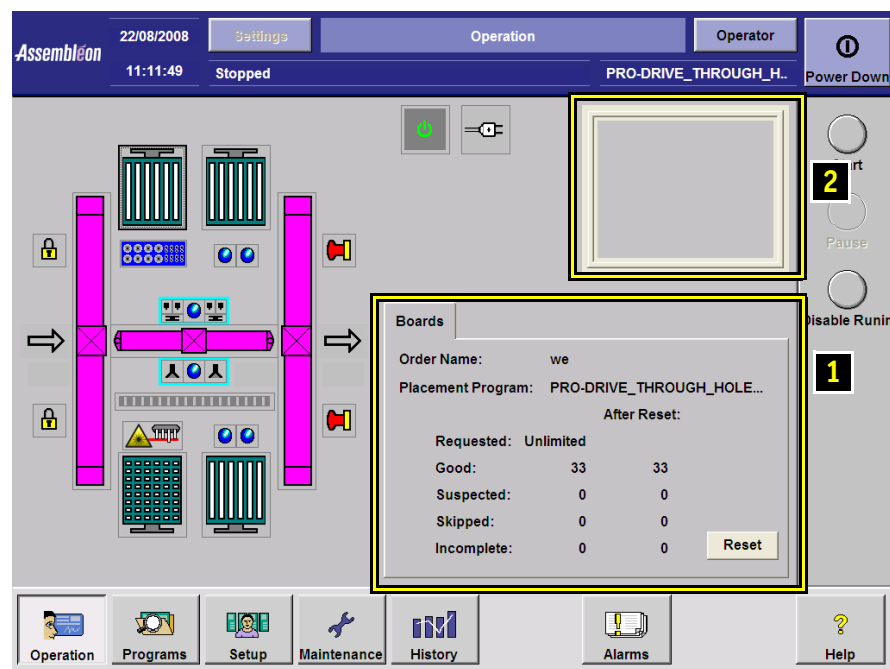


Figure 41 Graphical user interface

■ User interface (GUI), showing:

- The number of good, suspected and skipped boards are displayed (1).
- The camera images are displayed on screen (2).
- Warnings and errors will be displayed when they occur.
- Help is available on screen.
- SVS-pro screen (optional).

4.3 Stop production

4.3.1 Stop production by aborting the order

Under normal circumstances an order will be completed without stopping. If, for whatever reason, the order can be stopped temporarily. If the order must be stopped before completion abort and delete the order from the order schedule, and remove the boards from the machine.

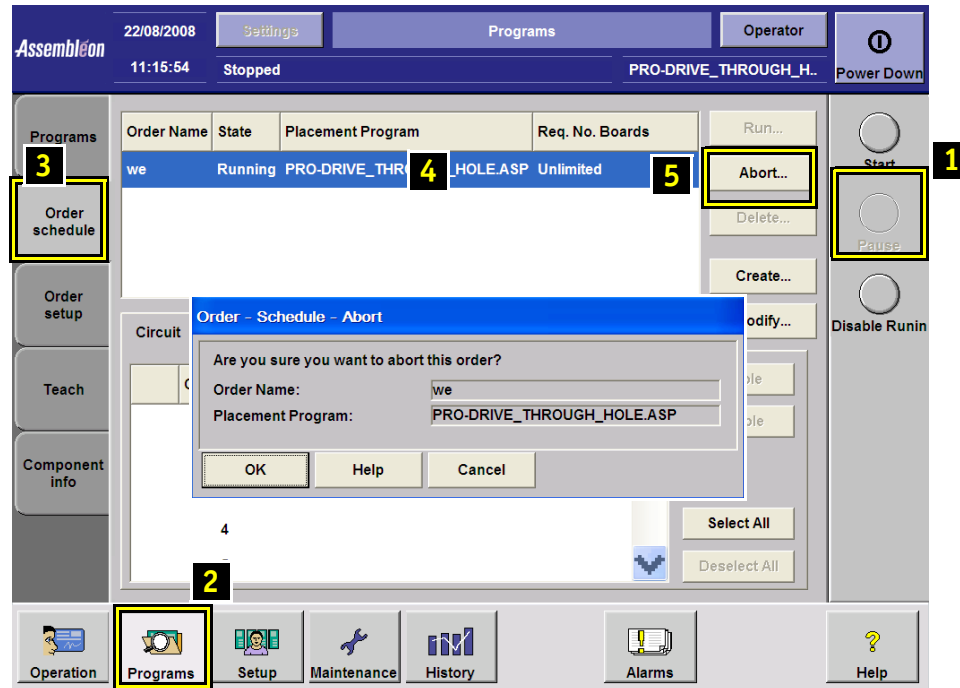


Figure 42 Stop production

To stop production:

1. Press "Pause".
2. Select "Programs".
3. Select "Order schedule".
4. Select the current order.
5. Select "Abort".
6. When the order is successfully aborted, select "Delete" to remove the order from the schedule.
7. To transport all boards out of the work-area press "Disable run-in" followed by "Start".

4.4 Pause production

At any time production can be paused.

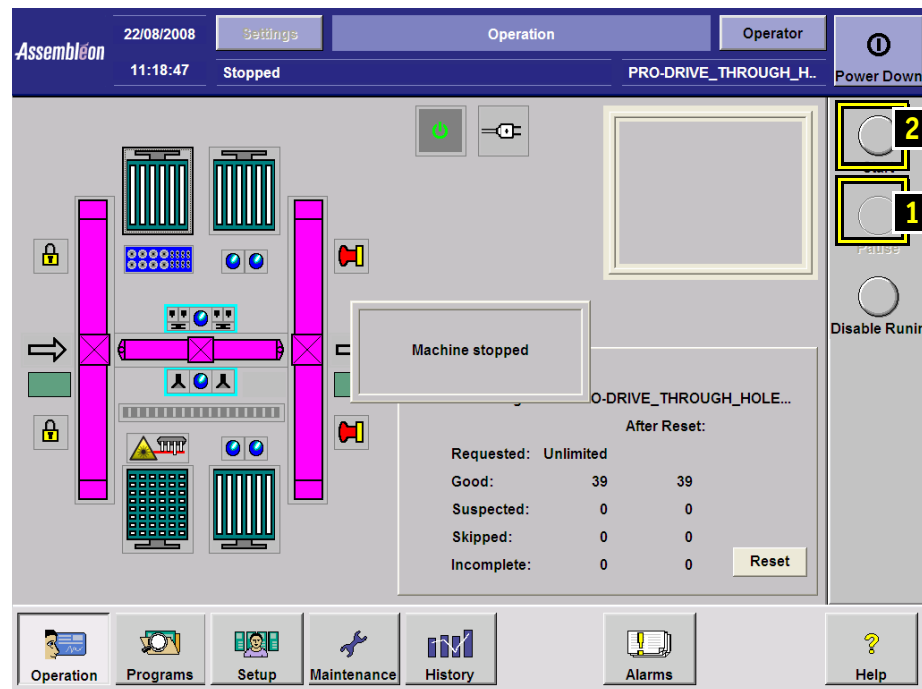


Figure 43

- Select 'Pause' (1).

The current order will stay active. From the pause state the order can be:

- Aborted, see [4.3.Stop production](#)
- Resumed by pressing 'Start' (2).

4.5 Power down the machine

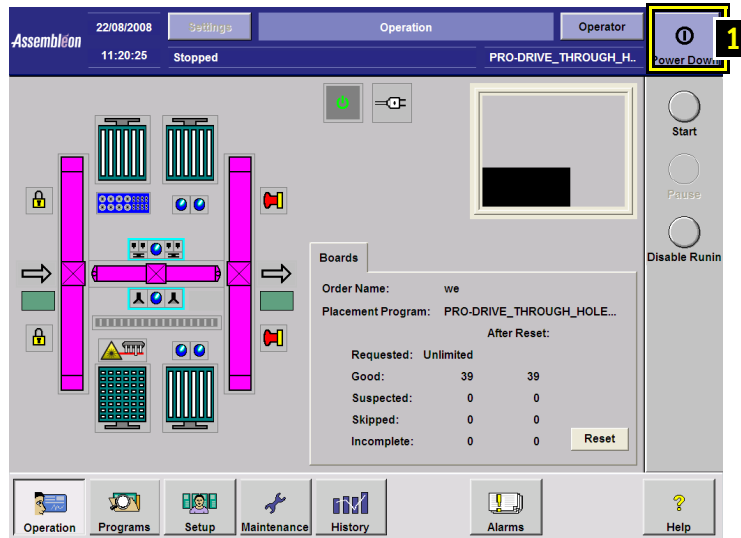


Figure 44 Power down the machine

If a program is running, stop production followed by:

- Press '1' to shutdown the system. Now the shutdown dialogue is presented, where the user is asked to acknowledge the proposed shutdown.

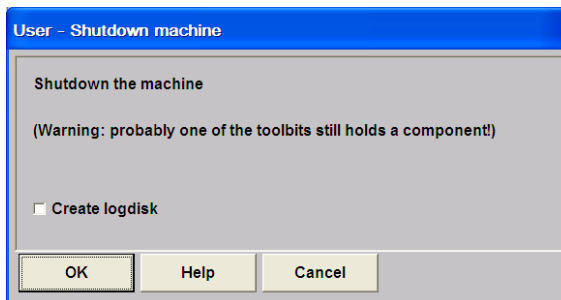


Figure 45 Shut down the machine

Clean the machine before power down, see [3.3.Machine cleaning](#)

CHAPTER 5 Change over production

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5.1 Order change, automatic with barcode triggered change over (BTCO) (optional)

When the old and new boards require identical machine set-up then BTCO is possible. This means that the machine can switch over from the old to the new product without completely running empty.

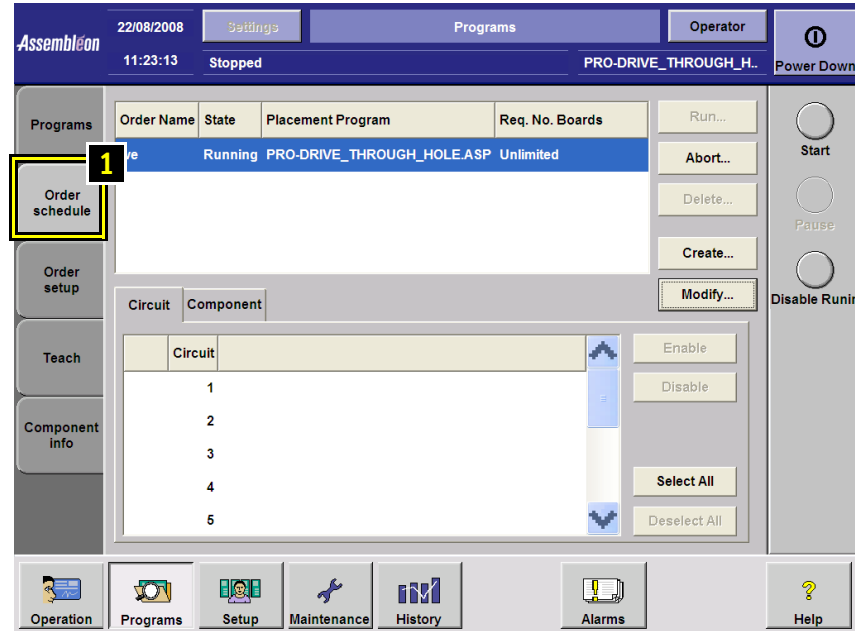


Figure 46 Automatic order change

- Press 'Order schedule'(1). The existing order schedule will now be shown.
- Specify in the order of the 'old' product how many boards have to be processed. The new board must be present at the run-in section exactly after the specified number of old boards has been processed.
- With the 'Modify' button, the order for the new product can be added to the order schedule.
- After the 'OK' button is pressed, the warning dialogue [Figure 47](#) will appear.

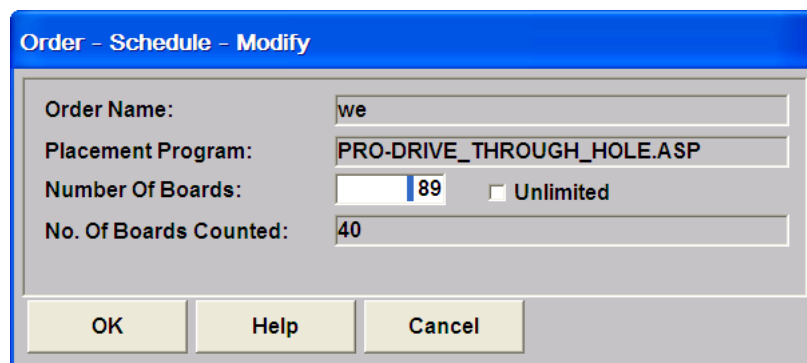


Figure 47 Order schedule- Modify

5.2 Order change, manual

When the old and new products require a different machine set-up it is not possible to do an automatic order change-over. The machine must run empty before the order for the new board can be entered. The new board is only allowed after the machine set-up has been changed and checked by the operator.

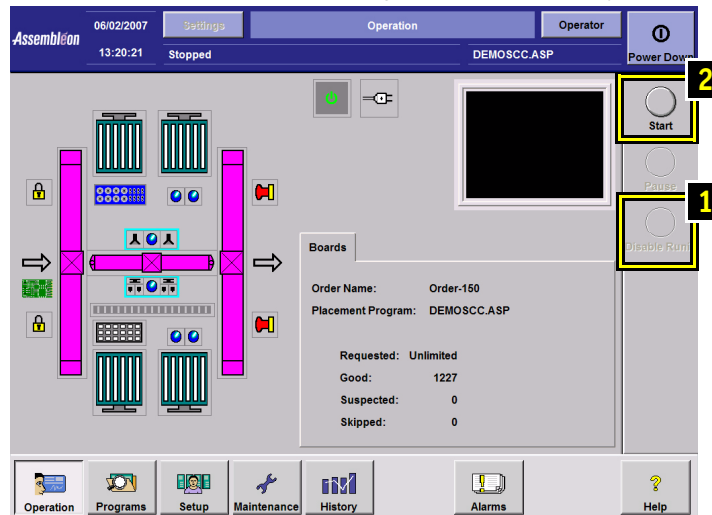


Figure 48 Manual order change

Before a set-up change is carried out all current boards must have left the machine:

- Run the machine empty on the existing order, or
- Select 'Disable run-in' (1), followed by 'Start' (2).
- When the machine has run empty, go to [3.7.Machine setup](#)

5.2.1 Feeder set-up

When the feeder set-up has been changed it might be useful to prepare trolleys before the actual order change-over takes place. As soon as the order is ready, the trolleys can be exchanged quickly.

5.2.2 Transport adjustment

Transport adjustment is not necessary when the successive boards have identical dimensions and clamping force requirements. This will often be the case when board carriers are used or when board frames have been standardized.

CHAPTER 6 Troubleshooting

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6.1 Errors and warnings, recognition

A coloured border shown around the alarm button indicates a machine or process malfunction:

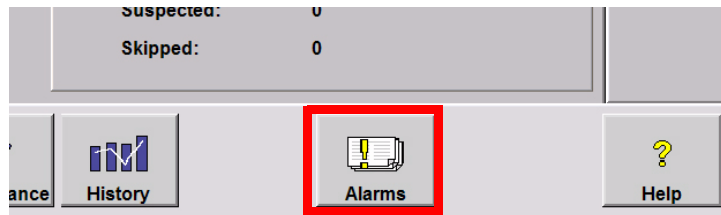


Figure 49 Error indication

- A **red** border indicates an error (1).
Machine stopped, error has to be solved before production can continue.
Beeps and **Blue** lamp on lamp post turn on.

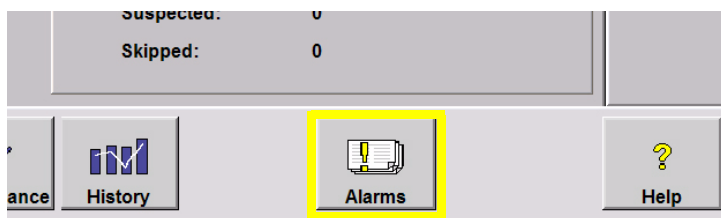


Figure 50 Warning indication

- A **yellow** border indicates a warning (2).
Machine proceeds, but problem should be solved for optimal operation.

6.2 Display errors

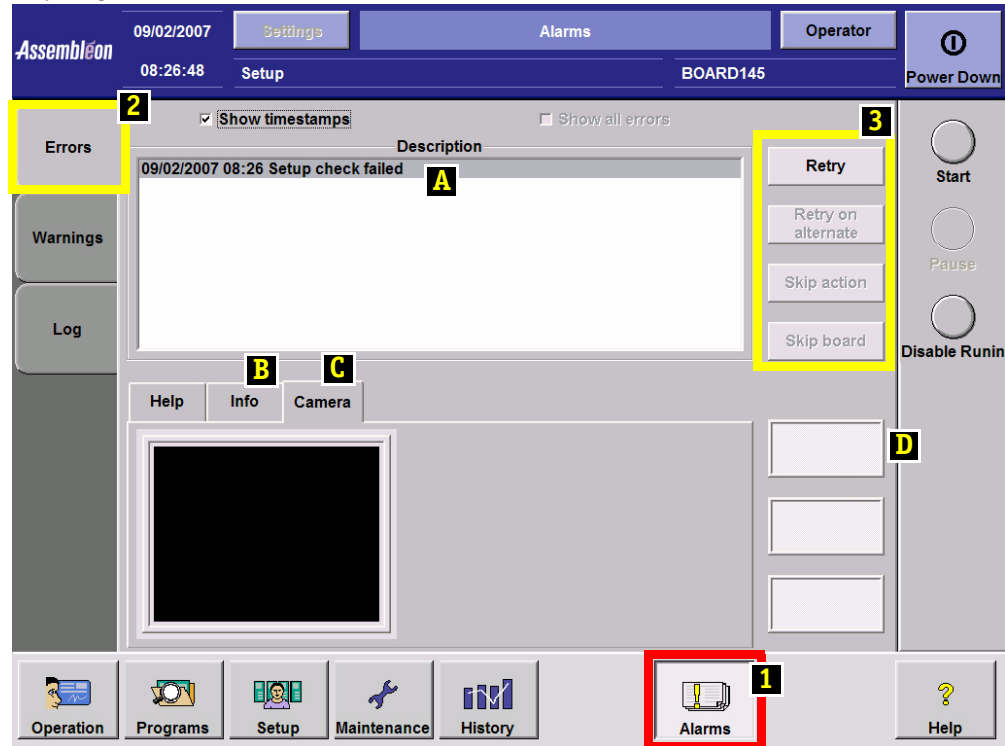


Figure 51 Alarm screen selection

- Select 'Alarms' (1).
- Select 'Errors' (2).
- Use available information on:
 - Error description (A).
 - Help instructions on selected error (B).
 - Camera view related to the error situation (C), see section 6.2.Display errors.
 - Access to recovery actions (D), see section 6.4.1. Diagnostics toolbox.
- Solve the problem on the machine.
After the problem is solved select one of the options on the right side of the information panel (3):
 - Retry all: retry all displayed errors.
 - Retry: retry the selected error only.
 - Skip action: skip action on module that is related to the selected error.



NOTE: Note that the options that are available depend on the errors that are displayed. Only options that are applicable for the displayed errors are visible.



NOTE: Selecting 'Skip Action' or 'Skip Board' leads to incomplete boards at the run-out. The message:

- 'Suspected board in Run-out' or
- 'Skipped board in Run-out' appears.

Remove or mark the board.

- After a retry the status of all modules involved is displayed. When an error is not solved, the error screen will continue to display the error. When all errors are solved, production will resume automatically.

6.2.1 Live mode after place error

When the machine detects a place error, the BA camera can be activated (Live mode) to view the feeder and board to diagnose the error:

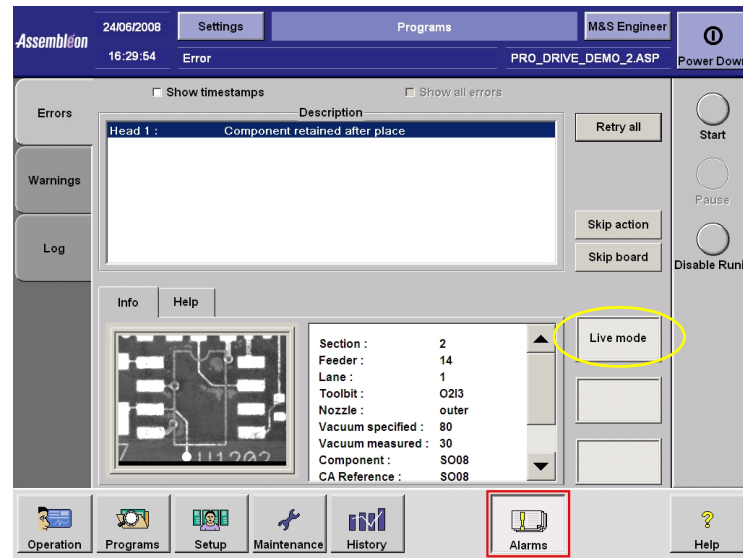


Figure 52

Error screen shows image of place position (after last retry) or board position after place error.

- Activate 'Live mode', diagnose errors without opening covers.
- Change properties as in 'Teach pick / place'.
- Use changes and/or save changes to running program.

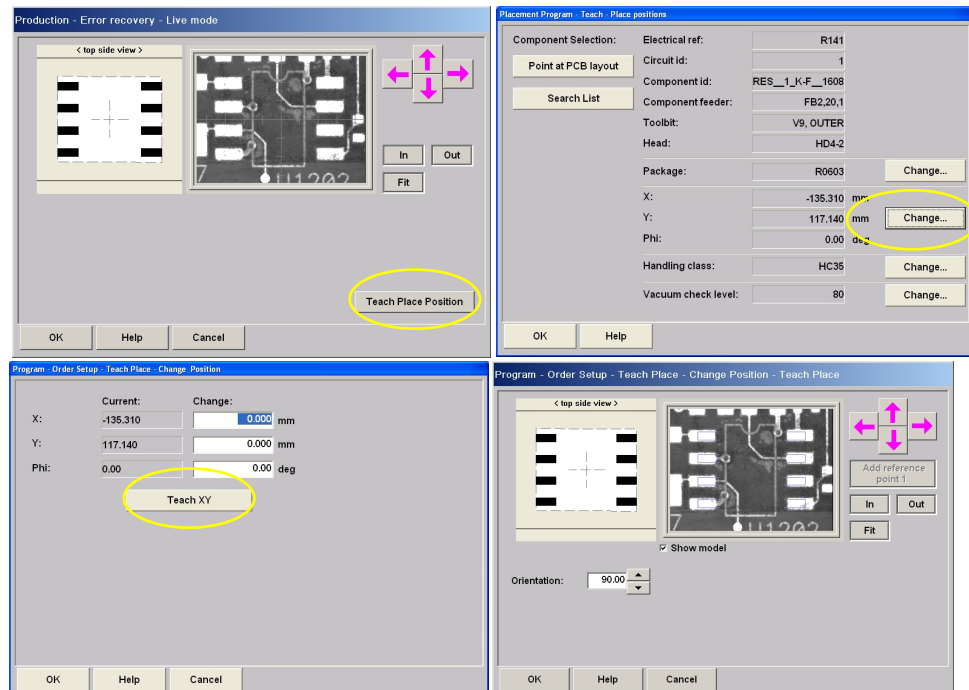


Figure 53

6.2.2 Live mode after pick error

When the machine detects a pick error, the BA camera can be activated (Live mode) to diagnose the error:

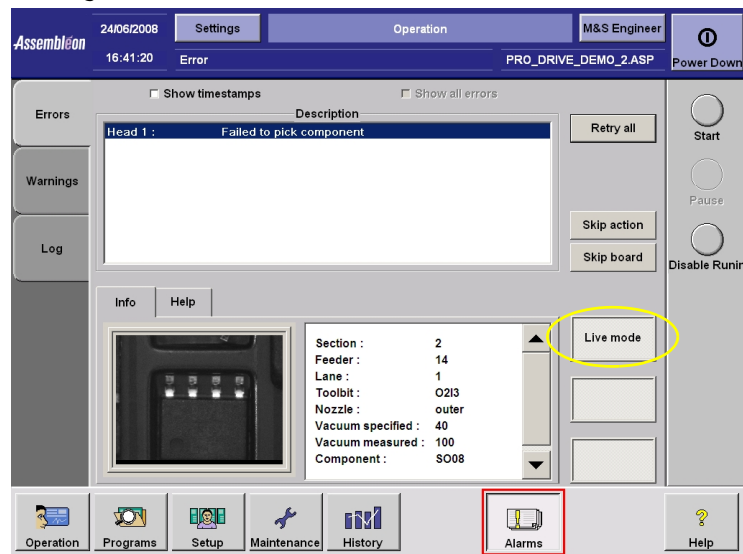


Figure 54

Error screen shows image of pick position (after last retry).

- Activate 'Live mode' , diagnose errors without opening covers.
- Change properties as in 'Teach pick / place'.
- Use changes and/or save changes to running program.

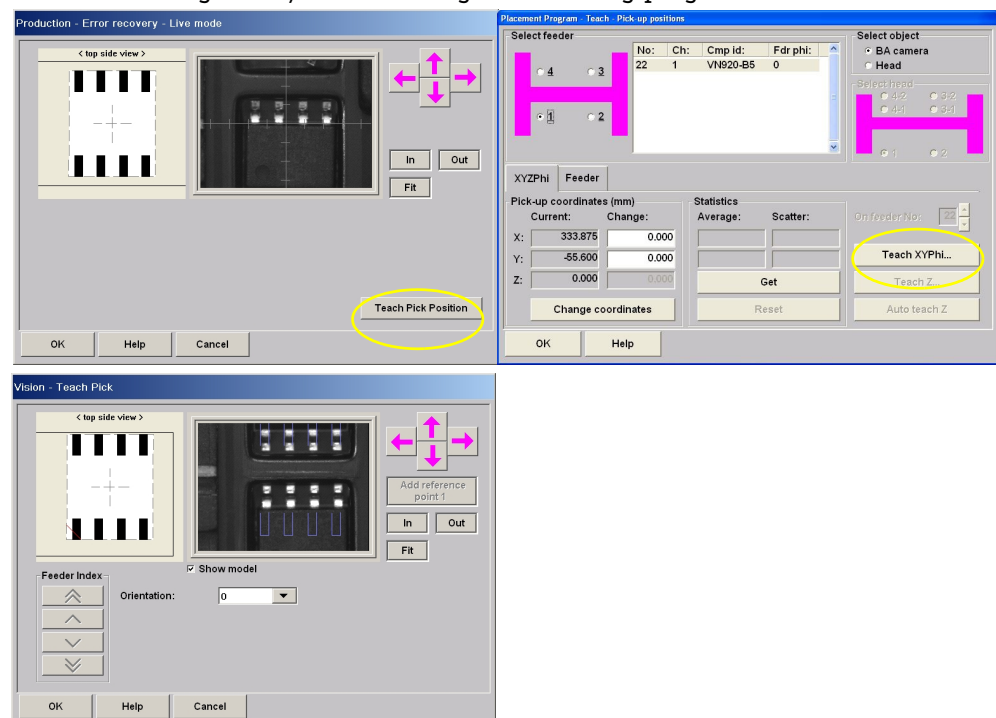


Figure 55

6.3 Display warnings

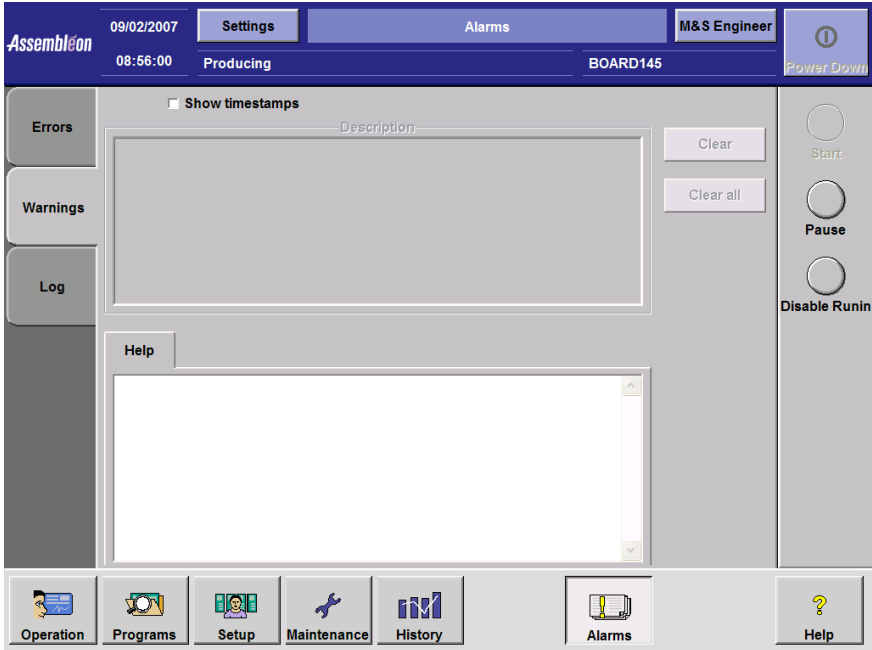


Figure 56

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6.4 Error solving procedures

6.4.1 Diagnostics toolbox

Use the diagnostics environment to troubleshoot the error situation in more detail. Access to the diagnostic environment is restricted to qualified and trained personnel of maintenance or service level only.